

28-29

AUGUST, 2023

ONLINE EVENT

INTERNATIONAL CONFERENCE ON

VETERINARY

SCIENCE

Contact us:

Ph: +1 (702) 988-2320 | Whatsapp: +1 (540) 709 1879

Email: veterinary@magnusconference.com

28-29 AUGUST

BOOK OF
ABSTRACTS

INTERNATIONAL CONFERENCE ON

**VETERINARY
SCIENCE**

Contents

Keynote speakers	5
Speakers	6
Welcome Message	8
About Host	10
About Event	11
Day 1 Keynote Presentations	13
Day 1 Oral Presentations	15
Day 1 Poster Presentations	39
Day 2 Keynote Presentations	46
Day 2 Oral Presentations	48
Participants List	67

Keynote Speakers



Lowell Ackerman
American College of
Veterinary Dermatology,
Canada



Andreia Freitas
INIAV/REQUIMTE,
Portugal

*Thank You
All...*

Speakers



Abhina Mohanan
JIPMER, India



Andreia Freitas
INIAV/REQUIMTE,
Portugal



Aleksandra Troscianczyk
University of Life Sciences,
Poland



Anna Kasprzyk
University of Life Sciences in
Lublin, Poland



Annalisa Berns
Pet Search and Rescue
Investigations, United States



Ana Margarida Ribeiro
University of Trás-os-Montes e
Alto Douro, Portugal



Asma Waheed Qureshi
Govt. College Women
University Sialkot, Pakistan



Carla Asorey Blazquez
Dick White Referrals,
United Kingdom



Colin Sakinofsky
L2D Architects,
Australia



Changjiang Weng
Harbin Veterinary Research
Institute, China



Dibyendu Biswas
Patuakhali Science and
Technology University,
Bangladesh



Farhad Karimi
Urmia University, Iran (Islamic
Republic of)



Kishalay Paria
Oriental Institute of Science
and Technology, India



Lowell Ackerman
American College of
Veterinary Dermatology,
Canada



Mahmoud M Elalfy
King Faisal University,
Saudi Arabia



Melissa Shyan Norwalt
University of Cincinnati,
United States

Speakers



Mark Okot
Conservation Through Public
Health, Uganda



Minakshi Arya
North Dakota State University,
United States



Marisa Gil Lapetra
Conectact Soluciones Y
Aplicaciones, Spain



Peter M Skip Scheifele
University of Cincinnati,
United States



Rajkumar Sah
Bihar Agricultural University,
India



Steven Theriault
Cytophage Technologies,
Canada



Shalini Sharma
GADVASU, India



Sukanta Biswas
University of Animal & Fishery
Sciences, India



Sanjib
Assam Agricultural University,
India



Tamara Ricardo
Instituto Nacional de
Epidemiología, Argentina



Tsvetan Tsvetkov
Institute of Biology and
Immunology of Reproduction-
Bulgarian Academy of
Sciences, Bulgaria



Wardhana April Hari
Research Centre for
Veterinary Science,
Indonesia

Welcome Message

Honored Congress Delegates, as we contemplate how to be more responsible with the use of systemic antibiotics in the management of canine pyoderma, there are several important concepts to consider. Antibiotic stewardship involves assessing and improving how and why antibiotics are prescribed by veterinarians, and how they are used by our clients and patients. Canine pyoderma is a common condition seen in veterinary practice, and in the past systemic antibiotics were frequently prescribed, often for long periods, or on a recurring basis. Using topical therapies in appropriate cases of canine pyoderma can improve treatment outcomes, focus attention on underlying issues, reduce adverse effects, and help minimize the risk of antibiotic resistance.

Lowell Ackerman

Lowell Ackerman

American College of Veterinary Dermatology,
Canada



Welcome Message

Dear participants of the “**International Conference on Veterinary Science**” (VET 2023), welcome you all. The theme of this congress “Embellishing Recent Innovations in Veterinary for Betterment of Animals”, related with the animal health and veterinary medicine committed with the animal welfare is of undeniable importance. In this congress experts of all veterinary related fields will be gathered to share advances, innovation along with the major difficulties encountered along the way. Either in person or online, this exchange of experiences and knowledge will represent a significant step in the contribution to overcome those main challenges and start new collaborations and international cooperation to continuously improve animal health and veterinary medicine from around the world.

Andreia Freitas

Dr. Andreia Freitas

INIAV/REQUIMTE, Portugal





ABOUT MAGNUS GROUP

Magnus Group (MG) is initiated to meet a need and to pursue collective goals of the scientific community specifically focusing in the field of Sciences, Engineering and technology to endorse exchanging of the ideas & knowledge which facilitate the collaboration between the scientists, academicians and researchers of same field or interdisciplinary research. Magnus Group is proficient in organizing conferences, meetings, seminars and workshops with the ingenious and peerless speakers throughout the world providing you and your organization with broad range of networking opportunities to globalize your research and create your own identity. Our conferences and workshops can be well titled as 'ocean of knowledge' where you can sail your boat and pick the pearls, leading the way for innovative research and strategies empowering the strength by overwhelming the complications associated with in the respective fields.

Participation from 90 different countries and 1090 different Universities have contributed to the success of our conferences. Our first International Conference was organized on Oncology and Radiology (ICOR) in Dubai, UAE. Our conferences usually run for 2-3 days completely covering Keynote & Oral sessions along with workshops and poster presentations. Our organization runs promptly with dedicated and proficient employees' managing different conferences throughout the world, without compromising service and quality.



ABOUT VET 2023

We extend a warm invitation to join us at the highly anticipated "International Conference on Veterinary Science" (VET 2023), a virtual event scheduled for August 28-30, 2023. This prestigious gathering will be centred on the theme of "Innovations in Veterinary Medicine: Enhancing Animal Welfare and Care." Our focus will be on current advancements, novel updates, innovations, and challenges shaping the field of veterinary science.

The global summit promises a rich array of educational offerings, including keynote sessions, symposiums, and both oral and poster presentations. These contributions will be rigorously evaluated and commended by our esteemed Editorial Board, comprising of distinguished Researchers, Scientists, Veterinary Practitioners, Animal Care Experts, Pharmacists, Healthcare Professionals, Veterinary Nurses, Animal Health Companies, as well as Veterinary societies & Associations.

Over the course of two enlightening days, attendees will be immersed in a wide spectrum of topics, covering cutting-edge technologies, both current and future, aimed at ensuring animals lead longer, healthier lives. This event also provides a valuable platform to raise awareness about the significance of animals in our daily existence on a global scale.

We hold strong confidence that VET 2023 will serve as a truly international forum, fostering exchanges with experts from around the world, forging new collaborations, and expanding professional networks.

28-29 AUGUST

DAY 01

KEYNOTE FORUM

INTERNATIONAL CONFERENCE ON

**VETERINARY
SCIENCE**

Topical therapy as a way of minimizing the use of systemic antibiotics for canine pyoderma

Canine pyoderma is a common entity seen in small animal veterinary practice, and despite the fact that it rarely occurs as a primary event caused by pathogenic bacteria, historically the treatment approach has been to rely on systemic antibiotic therapy, often for several weeks. In addition, even when canine pyoderma clears entirely with a regimen of systemic antibiotics, it often recurs, and this recurrence is also often treated with antibiotics. Given the current desire to demonstrate responsible antibiotic stewardship, and the real risk of microbial resistance from routine antibiotic use, better approaches are needed.

Canine pyoderma is often classified according to the depth of microbial penetration, the species of microorganisms involved, and any underlying causes. The vast majority are caused by overgrowth of commensal, mildly pathogenic bacteria, predominantly *Staphylococcus pseudintermedius*, which are superficial to intermediate in penetration of skin layers, and very often are secondary to underlying conditions. In these instances, the appropriate use of specific topical therapies is not only indicated but preferred and can greatly lessen the need for systemic antibiotics. Determining and addressing the underlying cause that ultimately perpetuates the superficial overgrowth of microbes is in the best interest of all concerned and helps make topical therapy a prudent and practical option.



Lowell Ackerman

Global Consultant, Author & Lecturer Massachusetts, United States

Biography

Dr. Ackerman received his veterinary degree from the Ontario Veterinary College (Canada), and board certification from the American College of Veterinary Dermatology. In addition to his veterinary credentials, Dr. Ackerman holds a Masters in Public Administration (MPA) from Harvard University, a Masters in Business Administration (MBA) from the University of Phoenix, a Certificate in Veterinary Practice Administration from Purdue University, and he is a Certified Valuation Analyst (CVA) through the National Association of Certified Valuators and Analysts (NACVA). He has extensive experience within the profession, with prior involvement in industry, private practice, academia, writing, and lecturing. He has authored or co-authored several books (including *Five-Minute Veterinary Practice Management Consult*, *Pet-Specific Care for the Veterinary Team*, *Proactive Pet Parenting*, *Almost Perfect Pets*, *Problem Free Pets*, *Behavior Problems of the Dog & Cat*, and *Atlas of Small Animal Dermatology*), and has lectured extensively on a global basis, on topics in both medicine and management.

28-29 AUGUST

DAY 01

SPEAKERS

INTERNATIONAL CONFERENCE ON

**VETERINARY
SCIENCE**



Colin Sakinofsky*, David Fletcher

Labs2Design Architects (L2D), Melbourne, Victoria, Australia

Designing Australia's national post entry quarantine facility

It's not every day that an architect has the opportunity to design the Australian National Post Entry Quarantine (PEQ) facility. And in your own back yard.

Background: In all our years as Specialists in Research Design, namely Laboratories, Biomedical, Pharmaceutical, Bioresources containment greenhouse design, the PEQ was one project opportunity not to be missed. This was very special and close to our hearts and to work on preserving life for companion animals (and others) as they transition into a meaningful life into Australia.

We are talking RED for Animals, and GREEN for Plants.

But curiously, the same site was developed for Victoria's Covid human quarantine – which will be illustrated as well.

Objectives: The scale of operation in a single site was unprecedented in Australia (possibly internationally as well) and in fact was quite unimaginable before it was completed.

- “Hotel” accommodation for:
 - 400 cats
 - 600 dogs
 - 120 horses
 - 60 alpacas – or other ruminants
 - Avian for racing pigeons, chickens and turkeys (BC3)
 - Bees (BC2) - particularly relevant as Australia was Varroa mite free at that time – currently under alert managing sentinel positive conditions in New South Wales.

And of course, all the plant (green stuff) coming into Australia – BC1, 2 & 3)

This presentation will outline the following:

- The Government objectives – the why
- Our approach - where to start;
- Setting out the site plan;
- Identification of species specific responses to biosecurity concerns;
- Biosecurity seclusion zones;
- Operational workflows for large volume animals;
- Identify the key design parameters;
- Species by species housing design and studies supporting the design approach;
- Collaborative engagement with the veterinarians/operators;
- Our principle challenges;

The presentation will conclude with what makes our day job so rewarding and how the PEQ has impacted on our thinking and internationally on the design of quarantine facilities for animals and plants.

Audience Take Away Notes

- A unique approach to quarantine – noting that Australia is an island remotely located to the southeast and offers quite different strategies than say Europe Asia or the Americas. There is no other similar example internationally
- Broad lessons and ideas that relate to a diverse species of animals and how to address effective quarantine
- Participants will be able to consider their own veterinary practice and operations with a focus on biosecurity and quarantine. It was evolutionary in terms of the regulatory environment as we were defining new quarantine/biosecurity regulations during the design process
- In essence it offers a guide to the practicalities of large volume animal care and with cost effective responses to design decision making
- We consider this PEQ facility to be an international benchmark, addressing design layout, engineering and controls leading to effective operational outcomes
- List all other benefits
 - o We will talk to the investigations and other benchmarks we used to define our design

Biography

Colin Sakinofsky is an architect and specialist laboratory planner dedicated to the delivery of Research-based architecture and engineering solutions. He is based in Melbourne Australia has been a leading contributor to many landmark-building projects in Australasia, with extensive knowledge in Research building and design for most laboratory types and function. Colin is passionate about animal/bioresource design and has special expertise in the design of animal facilities from rodents to large ruminants at all levels of biological containment, as well as plant research and glasshouse construction. He was previously the Director for Research at S2F, then SKM and Jacobs International.

**Carla Asorey Blazquez*, Ferran Valls Sanchez**

Department of Internal Medicine, Dick White Referrals, Station Farm, London Road, Six Mile Bottom, United Kingdom

Bicavitary haemorrhagic effusion in a dog with a liver lobe torsion

Aim of this case report: Liver lobe torsion is an uncommon condition in dogs. The goal of this report was to describe an uncommon presentation of this pathology where bicavitary haemorrhagic effusion and abscessation were diagnosed.

Case presentation: A 4-year-old male neutered Greyhound presented to a referral center in the United Kingdom in 2021 for investigation of vomiting, diarrhoea, abdominal pain and pyrexia. A haematology was unremarkable. Biochemistry revealed mild hypoalbuminemia (21 g/l RI 25-38), mild elevation of the ALT (238 IU/L RI 30- 180) and ALP (157 IU/L RI 19-120) and markedly increased C-reactive protein (215 mg/L RI <10). Point of care ultrasound of the thorax and abdomen revealed marked bilateral pleural effusion and moderate abdominal effusion. Cytology of the abdominal and pleural fluid was consistent with an exudate with marked neutrophilic inflammation (non-degenerate neutrophils) and evidence of haemorrhage. The haematocrit of the pleural and abdominal effusion was 0.11 L/L and 0.08 L/L respectively. Coagulation times (APTT and PT) were within normal limits and Angiostrongylus vasorum rapid immunoassay was negative. The patient developed tachypnea, requiring thoracocentesis and one liter of pleural effusion was drained. An abdominal ultrasound revealed a cranial abdominal lesion containing gas, compatible with an abscess. Small volume of pneumoperitoneum and severe cranial abdominal peritonitis were also identified. Computed tomography confirmed an emphysematous lesion in the cranial abdomen, suspected arising from the liver and highly suggestive of a liver lobe torsion, most likely of the papillary process of the caudate lobe, with concurrent abscessation of the lobe. No evidence of primary pulmonary pathology was identified.

Treatment and follow up: The dog underwent exploratory laparotomy and liver lobectomy. Histopathology of the papillary process revealed acute, diffuse and severe coagulative necrosis and haemorrhage. The pleural effusion was monitored over the course of 6 days and progressively resolved after the abdominal surgery. The underlying cause of the patient's liver torsion remained unknown. The dog was reported to be well one month after surgery.

Discussion: To the authors' knowledge, bicavitary effusion with liver lobe torsion has been rarely reported in veterinary small animal medicine, accounting for two dogs, one of them presenting with haemothorax and haemoabdomen. The pathophysiology for this is not well understood. The current case widens the literature about this possible manifestation of liver torsion and has an impact in veterinary small animal medicine as highlights the importance of considering it as a differential diagnosis for bicavitary haemorrhagic effusion, despite normal coagulation times, normal platelet count and mildly increased liver enzymes.

Audience Take Away Notes

- Case presentation of a dog with liver lobe torsion which is relatively rare in dogs
- The importance of considering liver lobe torsion as a differential diagnosis in dogs presenting with bicavitary haemorrhagic effusion, despite normal coagulation times and platelet counts

- Discussion of the proposed pathophysiology for the bicavitary haemorrhagic effusion in liver lobe torsion

Biography

Carla Asorey Blazquez, studied Veterinary medicine at Santiago the Compostela University, in Spain. She graduated in 2016, and completed a rotating internship at Rof Codina Veterinary Teaching Hospital. Carla then moved to the United Kingdom where she worked in a first opinion general practice for 14 months, prior to undertaking a rotating internship at DWR. Carla completed the rotating internship in 2021, and started her residency in Internal medicine at the same hospital. She is currently in her last year of residency.



Aleksandra Troscianczyk*, Aneta Nowakiewicz, Dominik Lagowski, Marcelina Osinska, Sebastian Gnat

Sub-Department of Veterinary Microbiology, University of Life Sciences in Lublin, Lublin, Poland

Correlation analysis between biofilm formation and virulence of enterococcus faecium and E. faecalis isolated from gastrointestinal tract of humans and animals

Enterococcus are pathogens that can cause nosocomial infections. Their ability to form biofilm influences the growth of virulence and also contributes to increase of antimicrobial resistance. Certain virulence factors may play an important role in biofilm formation. The aim of the study was analysis of relationship between the ability of *E. faecium* and *E. faecalis* to produce biofilm and presence of virulence factors.

The research was carried out on 153 *E. faecium* and 125 *E. faecalis* isolated from the digestive tract of humans and various group of animals. The evaluation of the biofilm formation capacity was performed by the crystal violet assay. The virulence analysis of the strains was performed based on the detection of 22 genes: *esp*, *cylA*, *cylB*, *cylM*, *agg*, *gelE*, *cpd*, *ccf*, *cob*, *efaAfs*, *afaAfm*, *ebpA*, *ebpB*, *ebpC*, *pil*, *srt*, *ace*, *sprE*, *fsrA*, *fsrB*, *fsrC*, *hyl* and gelatinase activity.

In this study, 7% of *E. faecium* and 59% of *E. faecalis* were able to produce biofilm. The most frequently detected virulence genes among *E. faecium* were *efaAfm* (95%), *ebpB* (92%), *ccf* (90%), *srt* (84%) and *pil* (74%). There were no *cylA*, *cylM*, *fsrA*, *fsrB*, *fsrC* genes detected in any of *E. faecium*, as well as gelatinase activity. *E. faecium* that do not produce biofilm had a higher percentage of detection of *ebpB* gene compare to biofilm positive *E. faecium* (statistically significant differences, $p < 0.05$).

E. faecalis showed a high percentage of *efaAfc* (98%), *ebpA* (97%), *ebpB* (96%), *ebpC* (97%), *srt* (97%) and *pil* (96%) detection. Moreover, 19% of *E. faecalis* had gelatinase activity. Statistical analysis showed on the one hand a higher percentage of *sprE*, *fsrA*, *fsrB*, *fsrC* and *gelE* genes and gelatinase activity among *E. faecalis* not producing biofilm compare to biofilm positive strains, on the other, biofilm positive *E. faecalis* were characterized by frequent presence of *esp*, *agg*, *cylA*, *cylB* and *cylM* genes compare to biofilm negative *E. faecalis*.

To sum up, *E. faecalis* compare to *E. faecium* have higher ability to form biofilm, as well as a higher variety of virulence factors. The high percentage of detection of *esp*, *agg*, and *cyl* genes among biofilm producing *E. faecalis* may indicate the important role of these factors in biofilm formation. On the other hand, the more frequent presence of some virulence factors among the non-biofilm producing strains indicates that biofilm formation is a more complex phenomenon.

Audience Take Away Notes

- Presented research will help to understand the mechanisms of biofilm formation created by microbes of key importance for public health
- Research sheds new light on Enterococcus virulence factors previously considered as markers of biofilm formation as a complex phenomenon.
- Understanding the phenomenon of biofilm formation by Enterococcus play an important role in areas such as human and veterinary surgery, as well as treatment due to contribution of spread of antibiotic resistance (e.g., via medical devices)

Biography

Dr. Aleksandra Trościanczyk graduated Veterinary Medicine at the University of Life Sciences in Lublin, Poland in 2012. Then, she joined the research group at the Sub-Department of Veterinary Microbiology and received PhD degree in 2017 at the same institution. She has published 25 research articles in SCI(E) journals (total impact factor 60,664).



Krzysztof Marycz*, Magdalena Zyzak

Department of Experimental Biology, Wrocław University of Environmental and Life Sciences, Wrocław, Poland

Sex hormone binding globulin at the crossbridge between PPAR γ and mitochondrion integrity

Equine Metabolic Syndrome (EMS) refers to a combination of endocrine and metabolic conditions that include insulin resistance, low-grade inflammation, and a predisposition to laminitis. Laminitis is considered one of the most life-threatening diseases in equine veterinary medicine due to lack of effective treatment. Many molecular pathways have been proposed to control the pathogenesis of this disease, including lipid hyperaccumulation, oxidative stress, low-grade inflammation, failure of SAT remodeling, and hormonal dysregulation. Sex Hormone-Binding Globulin (SHBG) is a glycoprotein synthesized primarily in the liver, that is responsible for the transport of sex steroid hormones. Recent findings indicated that SHBG is also produced by adipocytes and their precursors, thus playing an important role in adipose tissue metabolism balance. Our own data also demonstrated that both circulating SHBG and adipose tissue levels are significantly reduced in EMS-affected mares, correlating with molecular and functional dysfunction of adipocytes and their stem progenitor cells (ASCs). It has been suggested that SHBG may be an important factor involved in the regulation of immunometabolism and microarchitecture of adipose tissue functions and mitochondrion. On the other hand, Peroxisome Proliferator-Activated Gamma Receptors (PPAR γ) is a transcription factor that promotes adipogenesis, lipid uptake and storage, insulin sensitivity, and glucose metabolism. Defects in PPAR γ are therefore associated with the development of metabolic disorders and similar to SHBG, decreased PPAR γ levels are associated with insulin resistance and related endocrine abnormalities.

The aim of our study was to evaluate for the first time the impact of SHBG protein on mitochondrial metabolism and dynamics changes in ASCs isolated from EMS-affected horses and to verify whether SHBG could restore depleted PPAR γ functions and thus represent a new PPAR γ agonist candidate for the treatment of metabolic diseases. For this reason, we used Equine Adipose-Derived Stromal Cells (EqASC) with silenced PPAR γ and exogenously supplemented SHBG to highlight the impact of SHBG on PPAR γ loss related outcomes. Next, the mitochondrial membrane potential and dynamics of the mitochondrial network were subsequently evaluated using a variety of molecular and analytical techniques.

Obtained results showed that SHBG knockdown reduced mitochondrial potential, as reflected in mitochondrial membrane depolarization and reduced expression of key mitophagy factors (PINK, PARKIN, and MFN). PPAR γ silencing also induced a significant alteration in mitochondrial membrane potential as well as the expression of dynamics and metabolism-related markers. Interestingly, SHBG treatment enabled ameliorating the transmembrane potential, normalizing the expression levels of key dynamics and metabolic mediators, and restoring the protein levels of PINK, which is critically involved in the mitochondrial recycling machinery.

Obtained results suggests that SHBG improves the mitochondrial function and immunometabolism of ASCs. Our results sheds a promising light on the SHBG as a PPRG antagonist and molecular regulator of adipose tissue and ASCs in EMS affected horses. and their use in EMS treatment.

Audience Take Away Notes

- SHBG is a well-established sex hormones carrier, that controls their bioavailability in the blood and targeted tissues. Recent new lines of evidence suggested that SHBG could be further involved in other metabolic pathways that are critical for maintaining tissues immunometabolic homeostasis. However, little is known about the possible molecular interaction of SHBG with other master metabolic regulators. Thus, the presented study paves the way for a batch of new insights including:
- Elucidation of molecular interactions of SHBG with adipose tissue residing cells, which provides new information regarding adipose tissue functional status.
- Mechanistic comprehension of SHBG action in the course of metabolic syndrome and its importance in reversing associated metabolic abnormalities.
- Crosstalk between SHBG and PPAR γ , a pivotal factor that regulates various metabolic routes, and the evidence of a PPAR γ agonistic potential for the protein.
- The audience may thus benefit from the presented results, which could be integrated into larger-scale investigations, and could provide a new therapeutic candidate or guide other teams for a better understanding of SHBG-adipose tissue and ASCs metabolism axis at the molecular level. Our experimental design can also inspire research teams in settling deeper investigations with ex-vivo or in-vivo models in order to further document the molecular implication of SHBG in adipose tissue biology.

Biography

Professor Krzysztof Marycz is a molecular biologist with a specialization in the field of regenerative medicine and endocrinology. He is currently Head of the Department of Experimental Biology at UPWr in Poland, and General Director of Research & Development at the International Institute of Translational Medicine (MIMT), Visiting Professor at Stanford Medical School (USA), University of California, DAVIS (UC DAVIS) and Justus Liebig Universitat in Giessen (GER). Manager of grants funded by NCN, PARP, NCBiR and the American agency Center for Environmental Humanities. Honored by the Rector of UPWr and the Minister of Science of Higher Education for outstanding scientific achievements and for obtaining the degree of full professor before the age of 40.



Carla Asorey Blazquez*, Ferran Valls Sanchez

Department of Internal Medicine, Dick White Referrals, Station Farm, London Road, Six Mile Bottom, United Kingdom

Retrospective study of chronic coughing in dogs

Aims of the study: Chronic cough is a common complaint in small animal internal medicine. The aim of this study was to describe the most common causes of chronic cough in dogs.

Material and methods: The medical records from a referral centre in the United Kingdom were retrospectively reviewed for dogs presenting with chronic coughing between January 2012 and December 2021. Cough was considered chronic when present for at least 8 weeks. For each patient, age, sex, breed, weight and type of cough (productive or non-productive), duration, diagnostic investigations and definitive diagnoses were recorded.

Results: A total of 346 dogs were included in the study. The most common breeds were Labrador retriever (40/346, 11%) and Yorkshire Terrier (23/346, 6.6%). The mean age was 8 years (ranging from 5 months – 16 years).

The most common diagnoses of chronic cough in this population of dogs were airway collapse (102/346, 29.47%), chronic bronchitis (100/346, 28.9%), neoplasia (62/346, 17.91%) and infectious disease (58/346, 16.76%).

In dogs under 15 kg (172/346), airway collapse (82/204, 40%) and chronic bronchitis (49/204, 24%) were overrepresented. In contrast, dogs over 15 kg (174/346) were more frequently diagnosed with chronic bronchitis (51/218 23.3%) and neoplasia (43/218, 19.7%).

In dogs under 5 years of age, eosinophilic lung disease was the most common diagnosis (19/76, 25%). None of the dogs in this group was diagnosed with neoplasia. In dogs between 5 and 10 years of age the most frequent diagnoses were airway collapse (47/171, 27.4%) and chronic bronchitis (46/171, 26.9%). In dogs with over 10 years of age, the most common diagnoses were airway collapse (44/175, 25.1%), chronic bronchitis (41/175, 23.4%) and neoplasia (37/175, 21.1%).

Bronchoscopy and bronchoalveolar lavage were performed in most of the cases (259/346, 74.85%). Thoracic radiograph was the most frequent imaging modality performed (247/346, 71.39%).

Discussion and conclusion: To the authors' knowledge, this is the largest study of dogs with chronic coughing, providing useful information when approaching this clinical sign. This study concluded that chronic bronchitis and airway collapse are the most common causes of chronic coughing in dogs. None of the dogs under 5 years of age was diagnosed with neoplasia, and neoplasia was more frequently diagnosed in dogs over 15 kg. Eosinophilic lung disease was more frequently identified in younger dogs, with just one case diagnosed in elderly dogs (> 10 years). None of the dogs with over 10 years of age presented due to a foreign body.

Audience Take Away Notes

- Common concurrent symptoms of dogs presenting with chronic cough, depending on the underlying pathology

- Most common diagnoses of dogs presenting with chronic coughing
- Association of certain diagnoses with age and size of the dog, which will help to establish an investigation plan
- Most common investigations needed to achieve a diagnosis
- Breed predisposition to certain pathologies

Biography

Carla Asorey Blazquez, studied Veterinary medicine at Santiago the Compostela University, in Spain. She graduated in 2016, and completed a rotating internship at Rof Codina Veterinary Teaching Hospital. Carla then moved to the United Kingdom where she worked in a first opinion general practice for 14 months, prior to undertaking a rotating internship at DWR. Carla completed the rotating internship in 2021, and started her residency in Internal medicine at the same hospital. She is currently in her last year of residency.



Fernando Latorre^{1,2,3}, Claudia E Hawks¹, Marisa Gil^{1*}, Bruno Colmenares¹, Deepika Verma², Nuria Sala^{1,2,3}

¹Conectate Soluciones y Aplicaciones, S.L., Soria, CYL, Spain

²Connecting Solution and Applications, Ltd., Vancouver, BC, Canada

³Fundacion UNID, Soria, CYL, Spain

Revolutionizing veterinary practices with an international health booklet

Addressing the growing need for standardized animal health records during international travel, this work presents a cutting-edge integration of the Unified Identification Protocol for Training and Health, the International Civil Aviation Organization's Emergency Travel Documents (ICAO ETD), HL7's Fast Healthcare Interoperability Resources (FHIR) for the International Patient Summary (IPS), and Smart Health Cards (SHC) in QR code format. This combination creates an innovative International Health Booklet (IHB) for animals, available in both printed and digital formats (through a mobile app).

The Unified Identification Protocol offers a robust framework to verify and trace the training and health history of animals, enhancing the clarity and reliability of their health status. It provides a foundation upon which the other components build to create a comprehensive, international health system.

The ICAO Emergency Travel Document offers a globally recognized, secure identity verification system for pets. It fast-tracks cross-border procedures, ensuring seamless travel experiences while adhering to international standards.

HL7 FHIR facilitates IPS integration, providing real-time access to critical pet health data, aiding global veterinary communication, and enabling swift emergency responses. This standardization ensures consistency and interoperability of health records, irrespective of geography.

SMART Health Cards, encoded in QR format, bring convenience and immediacy to the system. Each QR code encapsulates encrypted health data, providing essential health information on demand. As every health record is registered on the blockchain, a corresponding QR code is generated and delivered to the pet owner, ensuring chronological traceability and immutability.

Additionally, the blockchain hosts the signature for each SMART Health Card. While the size of post-quantum computing signatures poses a challenge, hosting the signature on the blockchain instead of in the QR code itself keeps the QR manageable. This forethought not only future-proofs the system against quantum computing advancements but also optimizes the security and efficiency of the International Health Booklet.

In conclusion, the integration of the Unified Identification Protocol, ICAO Emergency Travel Document, HL7 FHIR for International Patient Summary, and SMART Health Cards establishes a transformative International Health Booklet for animals. This solution streamlines the veterinary procedures for international animal travel, delivering efficient, secure health management of animals across borders and propelling global veterinary practices into a new era.

Audience Take Away Notes

- The audience will learn about the integration of various technologies to create an International Health Booklet (IHB) for animals. They will understand how International Patient Summary, SMART Health Cards and blockchain work together to streamline veterinary procedures for international animal travel.

This knowledge can be applied by veterinary professionals, animal health regulators, and stakeholders involved in animal travel to ensure standardized and efficient management of animal health records

- This research will help the audience in their job by providing them with an International Patient Summary for animals facilitating immediate, comprehensive access to an animal's health history, facilitating effective diagnosis and treatment, and enhancing global veterinary communication for better health outcomes. The standardized animal health records will enhance the clarity, reliability, and efficiency of their work, ultimately benefiting the overall management of animal health
- Yes, it offers opportunities for further exploration and innovation in the field of animal health management and research. International Health Booklet provides standardized, robust datasets for veterinary research and clinical trials, thereby enhancing the understanding of animal health patterns and expediting the development and validation of new treatments
- Yes. The International Health Booklet provides a practical solution to the problem of standardized animal health records and for international travel. By integrating various technologies, it simplifies the management of animal health information and enhances efficiency. Designers involved in developing systems for animal health management, veterinary procedures, or cross-border protocols can benefit from this research as it offers a comprehensive and standardized approach to streamline their work and improve overall efficiency
- Yes. By providing standardized and real-time access to pet health data, facilitating communication between veterinarians, and ensuring traceability and immutability of records, the system offers a reliable and up-to-date source of information. This accuracy will assist designers in creating protocols, systems, and procedures that align with international standards and regulatory requirements
- List all other benefits
- Other benefits of the IHB system include
 - o Enhanced traceability and immutability of animal health records through blockchain technology
 - o Seamless cross-border procedures for pets, adhering to international standards and regulations
 - o Improved global veterinary communication and collaboration
 - o Swift emergency responses based on real-time access to critical pet health data
 - o Convenience and immediacy in accessing essential health information through SMART Health Cards in QR code format
 - o Future-proofing against advancements in quantum computing by hosting signatures on the blockchain
 - o Optimization of security and efficiency in managing animal health records
 - o Propelling global veterinary practices into a new era of standardized and integrated animal health management

Biography

Marisa Gil, CEO of ConnectHealth has a double-Master in Macroeconomic and Quantitative Analysis from the Complutense University and the Universite de Paris X. Marisa has worked over a decade in international organizations (Banco Mundial, OECD, Federacion Internacional de Hospitales) as an economist and public health analyst. She has also collaborated with the private sector in designing public health awareness and outreach strategies, research and business. She has publications in the "Open Data Roundtables for health policy strategies", Washington DC 2014; "Global Alliance of Health and Pollution", New York 2016; "World Scientific Handbook of Global Health Economics and Public Policy" Seattle 2017 and "American College of Healthcare Executives" Chicago 2018.



Tsvetan Tsvetkov^{1*}, Nadya Petrova¹, Hristina Blagova¹, Denica Daskalova¹, Detelina Vitanova², Rositsa Shumkova³

¹Institute of Biology and Immunology of Reproduction "Acad. Kiril Bratanov"- Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria

²University of Library Studies and Information Technologies, 1784 Sofia Bulgaria

³Research Centre of Stockbreeding and Agriculture, Agricultural Academy, 4700 Smolyan, Bulgaria

Cryopreservation of honey bee drone spermatozoa

Beekeeping has a significant role regarding the food and pharmaceutical industry. The production of pollen, propolis, royal jelly, beeswax and bee venom is an important factor for the human health and nutrition. Honey bees are the main pollinator for over 70% of agricultural crops. The mass extinction of honey bee colonies is a problem that occurs in the last decade and the scientific explanation of the phenomenon is not conclusive. Drone semen cryopreservation is a useful tool to enrich the genetic diversity of the colonies which has a major role on disease resistance in honey bees. The drone semen cryopreservation gives the opportunity for the beekeepers to preserve semen samples for long periods of time and to be used for artificial insemination of queens from different colonies. However, the cryopreservation processes has a negative effect on spermatozoa because of the cold shock, the cytotoxicity of the cryoprotectants and the formation of reactive oxygen species. In the presented review will be considered the instrumental methodology for the extraction of drone ejaculates, the modern protocols for low-temperature storage and the most commonly used cryoprotectants. In addition, the use of new substances and chemical components in the cryopreservation media will be examined. Attention will be paid to the problems related to the artificial insemination of queen bees with seminal fluid after a long period of cryopreservation. The presented report aims to inform specialists in the field of veterinary medicine dealing with the reproduction and breeding of bee colonies and to present the future aspects of long term low-temperature storage of honey bee drone spermatozoa.

Acknowledgment: With the support of the "Scientific Research" Fund in implementation of project No.KP-06 M66/6 2022

Audience Take Away Notes

- The audience will be able to learn how the process of cryopreservation of drone spermatozoa is performed
- It will be beneficial for specialists in different areas to apply the methods of long-term storage of genetic material for artificial insemination
- The research is beneficial for teaching specialist to integrate the methods in their theoretical and practical curriculum
- The presented methodology is beneficial for establishing new protocols for ultra-low-temperature storage and subsequent artificial insemination of Honey bees

Biography

Dr. Tsvetkov studied Molecular biology and Developmental biology at the Sofia University, Bulgaria. He is defending his doctorate in 2023 at the Institute of Biology and Immunology Reproduction - Bulgarian Academy of Sciences. He carries out his research as a Chief Assistant professor in the section for Reproductive Biotechnologies and Cryobiology of the Gametes. His scientific interests are related to the cryopreservation processes of spermatozoa from different animal species.



Rajkumar Sah

Assistant Professor-cum-Junior Scientist Animal Genetics & Breeding, V.K.S. College of Agriculture, Dumraon, Buxar, Bihar-802136 (Bihar Agricultural University, Sabour, Bhagalpur, Bihar- 813210) BAU Communication No. 1377/230106

Recent advancement in conservation of animal genetic resources

Livestock biodiversity is essential for food and livelihood security, but animal genetic resources are still underutilized and underconserved. A lot of genetic diversity exists in livestock breeds/population with respect to uniqueness in production potential, adaptability and diseases resistance. Uniqueness is the result of evolutionary forces and their interaction over longer period of time and its accurate analysis can provide genetic information that can be used in conservation and improvement. So, the ultimate goal of conservation is to maintain a sufficient balance of genetic diversity in population and prevent genetic erosion. For conservation we need to have complete information regarding breeds, members, distribution and population structure, trends in number, productive performance and adaptive characters. Local genetic resources are threatened by a number of factors including indiscriminate crossbreeding with cosmopolitan breeds and uncontrolled intermixing results into reduction of population size followed by increase risk of inbreeding. FAO reported 7600 breeds of livestock and more than 1500 breeds are at risk of extinction or are extinct.

Conservation of all breeds is considered to be financially infeasible due to cost of conservation, no particularly unique or valuable characteristics worth, having little historical or cultural significance and some breeds having very much similarity to each other genetically. Therefore, prioritization is needed. Therefore, it also needs to assess the accurate extinction probability, conservation value and conservation priority choosing the appropriate methodology and conserve them with suitable method of conservation in-situ under natural habitat or ex-situ under gene bank. Both genetic diversity and non-genetic criteria are important for prioritizing breeds for conservation. The threat status includes risk of extinction and efficiency of the breed utilization, and breed merit includes economic or productive, ecological and socio-cultural values of the breeds.

Traditional, genetic diversity analysis is based on pedigree records that is helpful to estimate inbreeding coefficient, coancestry etc. Molecular tools are at present one of the most powerful tools for genome analysis. These tools are not only used to genetic diversity analysis but also to reveal population characteristics like number of individuals, population dynamics, taxonomy, kinship etc. In 1990, microsatellite molecular markers prove to become very successful and extremely used for parentage testing, individual identification and breed allocation. But in past decade, modern genetic analysis arose with high-throughput sequencing, obtaining genetic information such as Single Nucleotide Polymorphisms (SNPs) and shotgun Whole Genome Sequencing (WGS). Thus, in addition to genetic diversity analysis, we need to consider threat status, breed utility and breed merit that enable us to make a balance between conserving diversity as insurance against future uncertainties and current sustainable utilization.

Audience Take Away Notes

- What to conserve, why conserve, how to conserve, How to estimate extinction probability, conservation value and how to set conservation priority
- It would be helpful for enrichment of knowledge, to set up the research objective and execution of research problems and finally policy making for conservation

Biography

Dr. Rajkumar Sah Graduated as B.V.Sc & AH in 1999 from one of the oldest veterinary college of India, Bihar Veterinary College, Patna which was affiliated under Rajendra Agricultural University, Pusa, Bihar. He was then awarded Junior research Fellowship by I.C.A.R., New Delhi and completed his M.V.Sc Degree in Animal Genetics & Breeding in 2002 from Gujarat Agricultural University, S.K. Nagar Gujarat. He then worked as Veterinary Office under the department of Animal Husbandry, Govt. of Bihar. He was appointed as a Assistant professor- cum- Junior Scientist in the year 2007 under the department of Animal Genetics and Breeding under under Rajendra Agricultural University, Pusa, Bihar. Thenafer, he has completed his Ph. D Degree in Animal Genetics & Breeding from National Dairy Research Institute, Karnal, Haryana, India in 2017. Thus he is working as a Assistant professor- cum- Junior Scientist since 2007 and performing teaching, research and extention activities.



Peter M Skip Scheifele

Communication Sciences & Disorders and Medical Education, University of Cincinnati, Professor Cincinnati, Ohio, United States

Animal audiology: New frontier

It is estimated that there are 70 million companion dogs and 5 million horses in the United States (American Veterinary Medical Association, 2012). Animal audiology is a relatively new branch of audiology, developing worldwide in an effort to assist pet owners and animal professionals in identification and prevention of hearing loss. Most of the animals likely to be clinically evaluated for hearing status are domesticated mammals, primarily pets, although it is also possible to evaluate reptiles, amphibians, birds, and zoo and aquarium animals with appropriate instrumentation and training.

As is the case for humans, hearing loss in animals may be congenital or acquired. The basic auditory structures of mammalian ears are similar to humans, and disorders affecting the auditory systems of mammals are likewise similar to those known to cause hearing loss in humans.

Although it may appear that with a few modifications to the instrumentation and test protocols routinely used for evaluation of human patients, the expertise of audiologists may be easily expanded to include evaluation of animals, audiologists intending to test animals must acquire a variety of new skills and must thoughtfully modify test methods in order to be successful in evaluation of animal hearing. The clientele for the animal audiologist are veterinarians, breeders, pet owners, trainers, and handlers of working and service dogs, and so the reasons for evaluating animals are inherently different than those encountered when testing human patients.

Audience Take Away Notes

- Animal audiologists teamed with veterinarians can expand the treatment of audiological pathologies. This can serve to raise awareness and clinical solutions for hearing loss
- Understanding the audiology and bioacoustics of animals will enhance the quality of life of animals
- Most certainly this research that other faculty could use to expand their research or teaching
- Unknown this provide a practical solution to a problem that could simplify or make a designer's job more efficient
- Unknown
- May be it will improve the accuracy of a design, or provide new information to assist in a design problem
- List all other benefits
 - Extending the working life of working dogs and quality of life of pets and exotic animals in zoos and aquariums

Biography

Dr. Scheifele is a Navy Vietnam and Cold war era veteran; submarine sonar and weapons officer/Navy Diver and Naval Oceanographer. He received his PhD in Animal Science and Hearing science from the University of Connecticut in 2003 and a medical elective from Mount Sinai School of Medicine. He directed the Navy Marine Mammal Technology Program, was Head Trainer at Mystic Aquarium. He was awarded the Order of the Decibel by President George Bush Sr. for his work with marine mammal bioacoustics. He trained and handled narcotics and bomb dogs. He teaches animal bioacoustics, audiology physics, and human Neuroaudiology in the College of Allied Health Sciences, and neurology in the College of Medicine. He serves as the U.S. Special Forces and DOD / DHS subject matter expert (SME) on tactical military working dog audiology.



Steven Theriault*, Tasia Lightly

Cytophage Technologies Inc., 26 Henlow Bay, Winnipeg, MB R3Y 1G4, CA

Aviphage™: Harnessing bacterial predators to improve poultry farm health

Disease transmission of avian borne bacterial pathogens such as Salmonella spp. and Escherichia spp. are a major global health concern in both developed and developing countries. Due to the overuse and mismanagement of Antibiotic intervention, along with their residual presence in either the environment or within the food systems, the rise of antimicrobial Resistance (AMR) renders many of these treatments ineffective. The continued limitation of these antibiotics proves to be of concern not only for animals, but human health as well. Bacteriophage (phage) are viruses specific to bacteria and have been demonstrated as an appealing alternative for the treatment of AMR infections. Due to their high specificity and replicative nature, phages overcome many of the shortcomings attributed to indiscriminate antibiotic use. At Cytophage Technologies Inc., we have developed therapeutics to not only limit the transmission of avian bacterial pathogens, but also reduce the amount of pathogen present. Our FarmPhage™ product, AviPhage™ a cocktail comprised of enteric bacteria targeting phages, demonstrated improved health outcomes in an authentic barn setting. In a large broiler trial comprising of flocks of nearly 1,000 birds, we have been able to achieve a reduction of enteric bacterial counts, 2.6% decrease in mortality and approximately 22% increase in weight gain resulting in earlier market delivery for chickens treated over a 33-day period. With increased regulatory measures toward antibiotic use and the prevalence of AMR pathogens, our AviPhage™ product offers farmers a safe and effective alternative to antibiotic use, while still improving animal health.

Audience Take Away Notes

- Bacteriophage offers farmers a pathogen specific antimicrobial which can aid in limiting the use of antibiotics
- How bacteriophage can be used in reducing bacterial pathogen transmission and improve animal health outcomes on poultry farms
- Surveillance of bacterial population during phage administration allows for rapid deployment of effective phage cocktail formulations

Biography

Dr. Steven Theriault is a synthetic biologist with 20 years research and entrepreneurial experience in generating biological solutions for biological problems. Early in his career, he was a member of the team that created the reverse genetic systems critical to the development of the Canadian Ebola vaccine as well as many novel and innovative diagnostic tools to aid in the fight against Ebola. Recently, Dr. Theriault research interests have turned to combating antimicrobial resistance with bacteriophages.



Minakshi Arya*, Jagdeep Singh Yadav², shubhavi Arya³, saatvik Arya⁴

¹Department of Computer Science, North Dakota State University, Fargo, North Dakota, United States

²Department of Animal Husbandry, Haryana Government, Gurugram, Haryana, India,

³Luddy School of Informatics, Computing and Engineering, Indiana University, Bloomington, United States

⁴Information School, University of Washington, Seattle, United States

Antibiotic influence on Mastitis management in cows and buffaloes

Mastitis, characterized by inflammation of the mammary gland due to microbial infection, is recognized as the most expensive ailment in dairy cattle. The economic impact stems largely from decreased milk production, with mammary tissue damage leading to reduced activity of milk-producing cells. Bacterial factors and host immune responses contribute to tissue damage, involving different types of cell death. The influx of immune cells, such as neutrophils, further exacerbates tissue damage and milk quality.

Different antibiotics are used in the treatment of the mastitis. However individual antibiotics are not effective in the treatment of animals, so the combination of the antibiotics will be useful to cure the animals as the antibiotics work on different parts of bacteria.

This study aims to evaluate the combined effects of various antibiotics, including Cephalosporins (Ceftriaxone(CTR), Cefoperazone Sulbactam(CFS), Ceftizoxime(CZX)) with DNA gyrase inhibitors (Enrofloxacin(EX), Levofloxacin(LE)) or 50S subunit- (Choramphenicol(Ch)) or 30S subunit-Tetracyclines (OxyTetracycline(Oxy))/Aminoglycosides (Gentamicin(GEN), Amikacin(AK)) or Cell membrane- Polymyxins (Colistin(CC)) and Bacitracin(BB), on mastitis in cows and buffalo. By assessing these combinations, the study seeks to identify effective treatment options for this economically burdensome disease.

Milk samples were aseptically collected by local dairy farmers according to standard procedures from their cows and buffaloes. Milk samples from 151 lactating animals (82 cows and 69 buffaloes) were collected from February 2023 to May 2023 and brought to the District Disease Diagnostic Laboratory, Gurugram. Data revealed that among different antibiotics, Ceftriaxone was highly sensitive, Enrofloxacin was sensitive, Chloramphenicol and Levofloxacin were mild sensitive against control of mastitis both in buffaloes and cows.

Dependent variables (CTR, CFS, CZX) were modeled using the Mixed procedures of SAS (SAS Institute, Inc., Cary, NC). Fixed effects of the different factors of EX, AK, Oxy, BB, GEN, Ch, CC, LE were investigated. $P > F$ values represent the p -values associated with the Type 3 tests of fixed effects. The p -values (typically < 0.05) help assess whether the effects of different antibiotics on mastitis control are statistically significant.

The analysis considered the effects of different antibiotics on mastitis control for buffaloes and cows separately. In Buff, Ceftriaxone has no combination with significant effect. For Cefoperazone sulbactam, Gentamicin and Choramphenicol have significant effect, and Ceftizoxime, Gentamicin, Colistin and Levofloxacin has significant effect. In Cows, Ceftriaxone, Amikacin and Levofloxacin have significant effect. For Cefoperazone sulbactam, Amikacin, OxyTetracycline, Bacitracin and Choramphenicol have significant effect, and Ceftizoxime, Gentamicin has significant effect.

Audience Take Away Notes

- The findings of this research have several practical implications for the audience, particularly those involved in dairy farming, veterinary medicine, and agricultural research

- **Application in Dairy Farming and Veterinary Practice:** Dairy farmers and veterinarians can utilize the study's results to make informed decisions about the selection and combination of antibiotics for treating mastitis in cows and buffaloes. By understanding which antibiotic combinations are effective, they can develop more targeted and efficient treatment protocols, leading to improved animal health and reduced economic losses due to mastitis
- **Enhancing Treatment Strategies:** This research will provide valuable insights into the synergistic effects of different antibiotic combinations. Veterinarians can tailor their treatment approaches based on the specific causative agents and severity of mastitis, leading to more effective treatment outcomes and faster recovery of animals
- **Expansion of Research and Teaching:** Other faculty members in related fields can build upon these findings to expand their research endeavors. The study's methodology, statistical analysis techniques, and results can serve as a foundation for further investigations into mastitis management, antibiotic efficacy, and animal health. Additionally, the study's findings can be integrated into educational curricula to enhance teaching and learning experiences for students pursuing careers in veterinary sciences, animal husbandry, and microbiology
- **Simplification and Efficiency in Design:** For researchers and practitioners involved in designing mastitis control and management strategies, this research offers practical insights that can simplify decision-making processes. By identifying specific antibiotic combinations that yield significant effects, designers can streamline their approach and create more efficient treatment protocols
- **Improved Accuracy and New Information:** The research contributes new information about the combined effects of various antibiotics on mastitis management. This knowledge can enhance the accuracy of treatment plans by incorporating a holistic understanding of antibiotic interactions and their impact on specific types of mastitis. As a result, practitioners can make more informed decisions to optimize treatment efficacy
- **Optimization of Resources:** The study's findings can lead to more targeted and effective use of antibiotics, reducing the risk of antibiotic resistance and minimizing the overall use of antibiotics. This contributes to sustainable farming practices and better animal welfare
- **Cost Savings:** Implementing evidence-based antibiotic combinations can lead to faster recovery and reduced treatment duration, translating to cost savings for dairy farmers. Additionally, more accurate treatment protocols can minimize unnecessary expenses and losses associated with ineffective treatments
- **Animal Welfare and Public Health:** By effectively managing mastitis, the study indirectly contributes to improved animal well-being and public health. Reduced antibiotic use and optimized treatment strategies mitigate the risk of antibiotic-resistant pathogens and potential contamination of dairy products
- In summary, this research offers practical solutions to the complex problem of mastitis in dairy cows and buffaloes. Its implications range from more effective treatment strategies and sustainable agricultural practices to expanded research opportunities and enhanced teaching resources in relevant academic fields. Ultimately, the study aims to improve animal health, farm profitability, and the overall quality of dairy products while contributing to broader advancements in veterinary science and microbiology

Biography

Dr. Minakshi Arya received her veterinary degree from Lala Lajpat Rai Haryana Agricultural University, India, and joined the Department of Animal Husbandry, Haryana Government, Gurugram, Haryana, India, as a veterinary surgeon. In addition to his veterinary credentials, Dr. Arya holds a Master of Science in Software Engineering from North Dakota State University, USA and is presently pursuing a Ph.D. in Software Engineering at the same institution. She is presently working in District Disease Diagnostic Laboratory, Gurugram, India. She has extensive experience within the profession, with prior involvement in industry, private practice, academia, writing, and lecturing.



Shalini Sharma^{1*}, Gursimran Folia¹, Geeta Devi Leishangthem², R S Sethi³, Gurpreet Kaur¹

¹Department of Veterinary Microbiology, GADVASU, Ludhiana, Punjab, India

²Department of Veterinary Pathology, GADVASU, Ludhiana, Punjab, India

³Department of Animal Biotechnology, GADVASU, Ludhiana, Punjab, India

Studies on the gene expression profile of the immune regulatory genes in peripheral blood mononuclear cells of cattle naturally infected with bovine tuberculosis

Bovine Tuberculosis (bTB) is a chronic infectious disease caused primarily by infection with *M. bovis*, which belongs to the *Mycobacterium tuberculosis* complex. The initial host response against bTB infections is mainly regulated by the Th1 response, which is characterized by the production of IFN- γ . With the progression of disease, *Mycobacterium* can survive in the host through the evasion of the host's immune response by manipulating it. Whole blood based assays, particularly Interferon Gamma (IFN- γ) Release Assays (IGRAs), are used for the diagnosis of bTB. The aim of the current study was to evaluate a panel of immunoregulatory genes for their potential use as the diagnostic biomarkers of *M. bovis* infection in cattle. In the present study a total number of 168 cattle were screened by comparative intradermal tuberculin test and molecular confirmation of bTB was done using IS6100 PCR. The haematological analysis of (n=25) bTB positive and (n=25) bTB negative cattle was performed. PBMCs from (n=25) naturally infected cattle and (n=25) healthy cattle was cultured and stimulated with Bovine PPD used as the stimulating antigen in vitro. PBMCs were harvested after 16hrs stimulation with the stimulating antigen. Seven target genes (MCP-1, MMP-9, CCR5, iNOS, IFN γ , TNF α and IL-23A) and one reference gene (GAPDH) was studied by the SYBR green RT-PCR assay. Cattle positive for bTB has reduced total lymphocytes count along with increased TLC and granulocytes. All the target genes were significantly upregulated ($p < 0.05$) in bTB positive cattle as compared to the healthy cattle. Findings suggest that (MCP-1, MMP-9, CCR5, iNOS, IFN γ , TNF α and IL-23A) can be consider as the potential diagnostic biomarkers of bTB infection in cattle.

Audience Take Away Notes

- In this research novel diagnostic biomarkers of bTB infection in cattle was studied which will be helpful in disease diagnosis
- Some animals (cattle) in the recent stages of disease or in very late stage of disease gives negative results in the preliminary screening test CITT, the identification of biomarkers will be of immense help to diagnose bTB infection in those cattle
- Yes, this research that other faculty could use to expand their research or teaching
- Yes, this provide a practical solution to a problem that could simplify or make a designer's job more efficient
- Yes, it improve the accuracy of a design, or provide new information to assist in a design problem

Biography

Dr. Shalini Sharma studied BVsc & A.H and graduated in 2011 from CSKHPKV Palampur, Himachal Pradesh India. MVsc in Veterinary microbiology and immunology was done in same institute in 2013. She was appointed as Veterinary Officer from year 2014-2018 in Himachal Pradesh state government. PhD degree was received in 2022 at GADVASU Ludhiana, India. ICAR NET qualified in 2018. She got AIR-4th in SRF-PGS Examination for PhD entrance in 2018. Global Eminent Researcher Award 2021 from Vij Education Trust was received. Award of INSPIRE Fellowship from DST in 2014 for completion of PhD. She has four published original research articles one review article as first author from MVsc research. She reviewed more than 15 research articles. She has 5 conference proceedings papers and two book chapters now she is working on her PhD research articles.

**Abhina Mohanan**

JIPMER, India

Epigenetic diet: The present and the future

"Epigenetics" is the term used to study the biological mechanisms that modify gene expression but not the primary DNA sequence. Post-translational biochemical changes to histones, nucleosome's main protein, or cytosine base methylation in DNA may bring epigenetic modifications. Epigenetic processes are modifiable and heritable. Epigenetics has gained popularity as a promising area for nutritional intervention because it is reversible. As a result, it is being viewed as a promising area for dietary intervention. Epigenetic patterns are set during gametogenesis, fertilization, and in utero, and these critical periods are exceptionally responsive to environmental factors. Recent studies reveal that the environment dictates gene activation or repression. As the modifications are mainly biochemical, they occur in response to lifestyle factors (such as diet, smoking, alcohol, and stress) and environmental factors (like pollution, radiation, and chemical exposure), with diet ranking as the most important. It is fascinating to know the role diet plays in epigenetic modifications and the control of gene expression. Through epigenetic pathways, nutrients can influence physiologic functions. Food nutrients travel via metabolic pathways and are transformed into more easily absorbed forms. The one-carbon cycle is a special process that generates methyl groups to silence the genes. Methionine, vitamin B12, folic acid, and vitamin B6 are essential for this system. Gene expression can be altered by dietary intake of these methyl-donating compounds. Any of these nutritional deficiencies would interfere with one-carbon metabolism and perhaps alter the way some genes are expressed—much more to be learned about nutritional epigenetics.

Honeybees are one of the ideal species to show the dietary role in epigenetics. In a honey bee colony, fertile queens and sterile workers emerge from the same progenitor and share the same genetic makeup. The queen bee and her workers may differ significantly because of their food. The unique diet known as "royal jelly" fed to the larvae aids in developing the honeybee queen. Royal jelly is an essential component of the diet. It gives the developing larva the outside information it needs to construct and keep the epigenetic state required to become a queen. The nutrients we extract from the food enter metabolic pathways, which are molded into molecules the body can use. The crucial contributions of epigenetics to disease prevention have come to light from recent findings. To more accurately forecast potential negative outcomes of epigenetic therapies, we must enhance our understanding of their mechanism of action. The sayings "You are what you eat" and "you are what your ancestors ate" have recently amassed much popularity. To uncover nutrients or bioactive food molecules that are beneficial for health, we will need to conduct additional research in the future. Diet and lifestyle habits can positively influence age-associated epigenetic variations. However, age-associated epigenetic research is still in its infancy. Before we fully comprehend the intricate connections between epigenetics, food, aging, and illnesses, much work still needs to be unraveled.

Audience Take Away Notes

- What is epigenetics
- Factors affecting epigenetics

- How does diet affect an individual phenotype and diseases
- Essential nutrients selection
- Our role in prevention and controlling
- An individual's overall health condition integrates multiple environmental signals beginning with gestation and acting through epigenetic changes, in addition to their genetic makeup. Here, the listener can understand how diet influences the epigenome in health and disease. Knowledge of preventive measures and individualized health programs may help them develop a modified lifestyle enabling them to lead a healthy life and thereby perform better in jobs
- Even though many researchers are engaged in this kind of research, it is evident that it can be used to advance teaching and other research. The globe is looking for the origins and treatments of numerous lifestyle disorders in the wake of the previous epidemic. Limited knowledge of the effects of nutrients or bioactive food components on histone modifications or chromatin remodeling complexes paves the way for further investigation on nutrients effect to improve human health
- The knowledge of diet and lifestyle will provide a practical solution to the specific constraints in real life to make the designer's job more effective and efficient
- The recommendations will help to improve the accuracy of diet design along with extending innovative information for the betterment of lifestyle designing and resolving the problem

Biography

Dr. Abhina M. completed BVSc & A.H from RIVER, Puducherry, and M.V.sc. Degree from KVASU, Kerala, India. She has joined as a Research Associate cum animal house veterinarian in an NGO. After working as Junior Veterinarian in a Veterinary hospital, she is pursuing her Ph.D. from JIPMER, India. The UOM has awarded a travel grant and compensatory registration for a presentation at iCOMOS 2016 in Minneapolis, USA. She was selected to participate in the Active Learning Delegates session in Tokyo at National Centre for Global Health and Medicine with a bursary award. She has published 4 original research papers, 5 conference proceedings papers, 1 review article as the first author from M.V.Sc research, and 3 articles of Ph.D. work are under review with reputed journals.

28-29 AUGUST

DAY 01
POSTERS

INTERNATIONAL CONFERENCE ON

**VETERINARY
SCIENCE**



Madeleine Bucki¹, Kerrie Ni Dhufaigh^{1*}, Christiane O'Brien¹, Andrew Weatherley², Nigel Walshe³, Tara McElligott¹

¹Research and Development, Micron Agritech, Dublin 7, Dublin, Ireland

²AJW Consulting Ltd, Deal, Kent, England

³Animol Inc., Canterbury, Kent, England

Comparison of strongyle egg counts from ovine faecal samples obtained through a common laboratory analysis (Traditional McMaster) and a rapid, on-site parasite diagnostic device utilising machine learning (Micron Kit)

Conventional treatment for gastrointestinal parasitic worms (helminths) in grazing livestock often involves untargeted, metaphylactic blanket treatment of animals with anthelmintics. As a result, worm resistance to anthelmintic drugs has become a significant issue for farmers and veterinarians worldwide, impacting farm profitability and animal welfare. Faecal Egg Counts (FECs) are an important diagnostic test to combat further anthelmintic resistance as they enable practitioners to better distinguish between animals that require treatment and those that do not. FECs are labour-intensive, time-consuming and require trained personnel to process the samples and visually identify the parasite eggs and oocysts. Consequently, the time between sample collection, transport, analysis, results and treatment can take days. This study aimed to evaluate a rapid, on-site parasite diagnostic device utilising a smartphone app and machine learning (Micron Kit) in terms of its capability to provide reliable egg counts while mitigating the time and labour requirements associated with a common FEC method (traditional McMaster) performed by a specialised laboratory. A total of 105 ovine faecal samples were collected. Each sample was homogenised and split equally between two labelled containers. One container per sample was processed using Micron Kit, the second container was sent to the laboratory. Briefly, 3 g of faeces were added to 42 mL of water (Micron Kit) or saturated saline (laboratory). The mixture was then homogenised, strained and prepared for either automated or manual microscopic analysis. Strongyle egg counts were conducted via video footage of samples by the Micron Kit Machine Learning algorithm (ML) and a Micron Agritech Technician (MT) and via McMaster slide by an independent laboratory technician (MM). Results were statistically analysed using a generalised linear model using SAS® (Version 9.4) software. The ratio of means was used to determine non-inferiority of the ML results compared to the MM results. The detection limit for each method was obtained using the sample dilution ratio and the total volume analysed. Absolute egg counts were converted to Eggs Per Gram of faeces (EPG). Both Micron Kit egg counts (ML and MT) were higher ($p < 0.0001$) compared to those obtained from the laboratory (MM). There was no difference between the ML and MT counts. The lower detection limit of the Micron Kit was 30 EPG compared to 50 EPG for the laboratory method. The Micron Kit method utilising a machine learning algorithm has been found to be non-inferior to the traditional McMaster method used by a specialised laboratory at quantifying Strongyle eggs in ovine faecal samples. With its lower detection limit and reduced labour and time requirements this diagnostic device can help veterinarians to increase their testing capacity, perform on-farm testing and deliver faster and more targeted parasite treatment to combat anthelmintic resistance. Future research will be aimed at validating this technology for further parasite species.

Audience Take Away Notes

- Faecal samples can be processed directly on-farm or in practice with reliable results obtained in minutes

- Simple sample preparation and automated analysis through machine learning enables high throughput testing and requires no specialised training
- Client results can be tracked and shared with farmers directly via the app through email or messenger services
- Fast turnaround on results can help farmers to adopt a test-then-treat approach more easily. This will help to combat further anthelmintic resistance
- Further parasites are currently being validated for use with the method and technology

Biography

Dr. Ni Dhufaigh graduated from the National University of Galway in 2015 with a BSc (Hon) in Marine Science. She then joined the MFRC of Galway Mayo Institute of Technology in 2017 as a PhD student elucidating the virulence factors of *Neoparamoeba perurans*. In February 2021, she commenced her post- doctoral position at Teagasc, Ireland working on bovine respiratory disease by viral metagenomic and 16S sequencing. She is now working as a research associate at Micron Agritech, an Irish biotechnology company specialising in rapid animal parasite diagnostics.



Aya Atef Kandil^{1*}, Amal Abdelmonem Halawa², Radwa Shata³, Saleh Shafik Mohamed¹, Maha Abdou Al Ashmawy³

¹Animal Health Research Institute, Mansoura, Egypt

²Department of Forensic Medicine and Toxicology, Faculty of Veterinary Medicine, Mansoura University, Mansoura, Egypt

³Department of Food Hygiene and Control, Faculty of Veterinary Medicine, Mansoura University, Mansoura, Egypt

Effects of yoghurt manufacturing procedures on poly cyclic aromatic hydrocarbons in milk

The study was conducted to throw more light on the changes of Polycyclic Aromatic Hydrocarbons (PAHs) concentration in milk introduced for yoghurt manufacture steps till 120 hours of cold storage. It was clear that heat treatment at 90°C for 20 minutes during manufacture of yoghurt showed total reduction % of $\Sigma 18$ and % $\Sigma 4$ (sum BaA, CHR, BbF and BaP) PAHs in all artificially injected milk samples about 71.5, 90.95%, respectively. Furthermore, after heat treatment both Benzo[ghi]perylene and Dibenz[a,h] Anthracene in addition to Benzo[b]fluoranthene were not detected in all artificially injected milk samples. Consequently, reduce the daily intake of PAHs from contaminated milk with PAHs by the effect of heat treatment. However, slight increasing level of PAHs after yoghurt curd formation of incubation at zero time at pH 4.75. Although the presence of PAHs in milk intended for yoghurt manufacture does not affect yoghurt starter culture development and their role in conversion of lactose to lactic acid which is the cause of low pH in yoghurt. Therefore, the construction of curd during the incubation period occurs in an appropriate manner. The reduction of PAHs concentration proved that PAHs affected by both cold storage and pH changes in yoghurt curd. The reduction of PAHs by yoghurt starter maybe related to pH effects during incubation periods, several authors labelled pH as a factor. The highest reduction in yoghurt samples during cold storage was detected after 72 hr. of storage and was found at pH 4.51, with mean reduction percentage 31.25% for Total ($\Sigma 18$ PAHs) and 74.92% for Total ($\Sigma 4$ PAHs). The highest reduction was recorded with the compound CHR with reduction rate 90%.

Collectively, it could be concluded that, milk and its products are daily used, thus the exposure to PAHs is unavoidable, highlighting the carcinogenic potential of such compounds on long term exposure particularly for infants and babies. Nowadays, in the food industry it is very common to use starter cultures to improve the characteristics of the food products, and the possibility that these beneficial microorganisms in the food sector has a long tradition, namely lactic acid bacteria would degrade these contaminants is of great interest.

Audience Take Away Notes

- Audience will expand their knowledge about what are Polycyclic Aromatic Hydrocarbons (PAHs), it's health effect, where they come from, how we exposed to them and how to reduce the exposure
- provide new information about food industry as it is very common to use starter cultures (LAB) to improve the characteristics of the food products, and the possibility that these microorganisms would degrade these contaminants as PAHs
- Food quality and safety is a pertinent issue, consumers are concerned that their food should be both of high nutritional value and free from chemical residues
- Audience will get a knowledge about the important to reduce the concentrations of PAHs and minimize health problems

- Audience will get a knowledge about the carcinogenic potential of such compounds on long term exposure particularly for infants and babies, especially milk and its products are daily used, thus recommended that heat treatment play an important role in decreasing some contaminants as PAHs and may be effective in the reduction of the daily intake of PAHs containing food

Biography

Dr. Aya Atef Kandil is currently working as a researcher at Animal Health Research Institute, Egypt. She has got the Bachelor of veterinary Medical Science (B.V.Sc.) from veterinary medicine collage at the Mansoura University, Egypt in 2012. She has got diploma in biochemistry in (2013). She has got the master's degree of Veterinary Medical Science (M.V.Sc.) in Milk Hygiene, Food Hygiene & Control Department, Faculty of Veterinary Medicine - Mansoura University, Egypt in (2018) entitled: Effect of some natural additives on pathogens isolated from milk and dairy products. She had international publications entitled: Identification of *S. aureus* and *E. coli* from dairy products intended for human consumption. Another one entitled: Detection of Polycyclic Aromatic Hydrocarbons Concentrations in Egyptian Raw and Sterile Milk. Now she is working on PhD degree entitled Polycyclic aromatic hydrocarbons in Egyptian milk with interventions to prevent or reduce PAHs.



Ghebremedhin Tsegay^{1,2*}, Weldu Tesfagaber^{1,2}, Yuanmao Zhu¹, Xijun He¹, Wan Wang¹, Zhenjiang Zhang¹, Encheng Sun¹, Jinya Zhang¹, Yuntao Guan¹, Fang Li¹, Renqiang Liu¹, Zhigao Bu¹, Dongming Zhao¹

¹State Key Laboratory of Veterinary Biotechnology, National High Containment Facilities for Animal Diseases Control and Prevention, National African Swine Fever Para-reference Laboratory, Harbin Veterinary Research Institute, Chinese Academy of Agricultural Sciences, Harbin 150069, People's Republic of China

²Department of Veterinary Science, Hamelmalo Agricultural College, Keren, Eritrea

Novel p22-monoclonal antibody based blocking elisa for the detection of African swine fever virus antibodies in serum

African Swine Fever (ASF) is a highly infectious viral disease of pigs, resulting in significant economic loss worldwide. As there is no approved vaccines and treatments, the control of ASF entirely depends on early diagnosis and culling of infected pigs. Thus, highly specific and sensitive diagnostic assays are required for accurate and early diagnosis of ASF virus (ASFV). Currently, only a few recombinant proteins have been tested and validated for use as reagents in ASF diagnostic assays. The most promising ones for ASFV antibody detection were p72, p30, p54, and pp62. So far, three ELISA kits based on these recombinant proteins have been commercialized. Due to the complex nature of the virus and variety forms of the disease, robust serodiagnostic assays are still required.

ASFV p22 protein, encoded by KP177R gene, is located in the inner membrane of viral particle and appeared transiently in the plasma membrane early after virus infection. The p22 protein interacts with numerous cellular proteins, involved in processes of phagocytosis and endocytosis through different cellular pathways. However, p22 does not seem to be involved in virus replication or swine pathogenicity. In this study, E.coli expressed recombinant p22 protein was used to generate monoclonal Antibody (mAb) and its potential use for the development of blocking ELISA (bELISA) was evaluated. A total of 806 pig serum samples were tested to evaluate the bELISA. According to the ROC (Receiver Operating Characteristic) analysis, 100% sensitivity and 98.10% of specificity was recorded when the PI cut-off value set at 47%. The novel assay was able to detect the antibodies as early as 9 days post infection. Finally, a highly sensitive, specific and rapid novel p22-mAb based bELISA assay was developed, and optimized for detection of antibodies against genotype I and II ASFVs. It is a promising candidate for an early and accurate detection of the antibodies and highly expected to have a valuable role in the containment and prevention of ASF.

Audience Take Away Notes

- The audience may be able to understand the complexity of ASFV and the necessity of effective diagnostic method
- A novel p22 monoclonal antibody-based blocking ELISA was successfully developed
- The novel p22-bELISA assay can detect antibodies rapidly and accurately, which could be useful in the containment and prevention of ASF
- This study will assist researchers to further investigate the immunogenic importance of the P22 protein in ASFV infection

Biography

Ghebremedhin Tsegay has completed his MSc degree in June 2022 from Harbin Veterinary Research Institute School of Veterinary Medicine, Chinese Academy of Agricultural Science, China. He specialized in the field of Veterinary Microbiology and molecular biology under the supervision of Prof. Zhao Dongming. He is Lecturer in Hamelmalo Agricultural College, Department of Veterinary Science, Keren Eritrea. Now he is graduating class in Harbin Veterinary Research Institute, China. He has published about 4 research articles in SCI(E) journals.



Farhad Karimi^{1*}, Bijan Esmailnejad¹, Mousa Tavassoli¹, Naser Hajipour²

¹Department of Pathobiology, Faculty of Veterinary Medicine, Urmia University, Urmia, Iran

²Department of Pathobiology, Faculty of Veterinary Medicine, University of Tabriz, Tabriz, Iran

First investigation on alimentary tract parasitic fauna of black-headed gull (*Chroicocephalus ridibundus*) in Iran with the first record of *Opisthorchis* spp. In gulls

Gulls are water birds with a wide distribution worldwide and habitats very close to the human environment. Due to being a migrant and omnivorous diet of these birds, they can contract and transmit many diseases all over the world. This research aimed to investigate the parasitic fauna of the black-headed gulls (*Chroicocephalus ridibundus*) for the first time in Iran to show the importance of the transmission of common diseases between different species of animals and zoonoses by these migratory birds.

Sampling was conducted during the winters of 2022 and 2023 in the urban areas of Tehran, Iran. A total number of 200 stool samples were collected and stored in 2.5% potassium dichromate and 4°C. The samples were examined by flotation, direct slide from the sample, staining with Modified Ziehl-Neelsen to identify *Cryptosporidium* spp. and acetic alum carmine staining to identify cestodes. In this survey, 11 species of parasites found were identified by the morphological evaluation. In total, four species of trematodes including *Cryptocotyle* spp. (2%), *Echinoparyphium recurvatum* (2%), *Echinostoma revolutum* (4.5%), and *Opisthorchis* spp. (1.5%), three species of cestodes such as *Diphyllobothrium dendriticum* (2.5%), *Wardium* spp. (0.5%) and *Cestode* spp. (1%), three species of nematodes include *Capillaria carbonis* (3.5%), *Eucolus contortus* (27%) and *Tetrameres* spp. (2%) moreover one type of *Eimeria* spp. (8%) as protozoa were identified. Six species of these helminths were reported for the first time in Iran. The five species were also found for the first time in the black-headed gull. *Opisthorchis* spp. is identified for the first time in gulls and the second report of this parasite in birds.

Considering the Significance of further investigation of gulls as carriers of new parasitic diseases and to create strategies to minimize these diseases to humans and animals, considering the closeness of the environment of these birds to the human environment. The wide range of zoonotic parasitic diseases in gulls is also very significant. In addition, in recent studies, by identifying birds as a new host for *Opisthorchis* spp. and the importance of this parasite in causing disease in humans, the continuation of research on the transmission of this parasite by migratory birds to new areas is determined. The images of some parasite eggs are unavailable in the references and are being published for the first time.

Biography

Farhad Karimi is a student of DVM in the faculty of veterinary medicine, at Urmia University, Iran. This research is the dissertation of the student in the veterinary parasitology department, led by Professor Mosa Tavassoli and Doctor Bijan Esmailnejad. This is the first published research by the author.

28-29 AUGUST

DAY 02

KEYNOTE FORUM

INTERNATIONAL CONFERENCE ON

**VETERINARY
SCIENCE**

Corticosterone detection method in eggs as a stressor indicator in laying hens

Animal welfare is nowadays a growing concern specially in relation with the intensive animal production for food industry. The implementation of biosecurity measures can provide tools to guarantee the proper and healthy animal farming. In fact, and in accordance with the Sustainable Development Goals (SDG), the SDG 12 highlights the need for a more responsible consumption and production of food in which the animal welfare should be considered. One of the most consumed foods of animal origin is egg. The laying hens and the intensive egg production systems in place can be very severe for poultry, including restricted spaces with shared drinkers and feeders together with weak nutritional and hygiene conditions, leading to a stressful environment for the animals. In poultry, an indicator of stress is the occurrence and raising of corticosterone concentration that may be detected in animal tissues and eggs.

The main goal of the present work was to develop and validate an ultra-high performance liquid chromatography method coupled with a triple quadrupole mass spectrometry detector (UHPLC-MS/MS) to detect and quantify the levels of corticosterone in eggs. Several extraction procedures were tested and the final method was fully validated for the determination of corticosterone in full eggs. Validation, and acceptance criteria evaluation, was performed in accordance with the Commission Implementing Regulation (CIR) 808/2021 in which the parameters assessed were: specificity, selectivity, linearity, precision, recovery, $CC\alpha$ and $CC\beta$.

The method presented can contribute to monitor the quality of laying eggs production and in helping to certify the final product, the egg, since the consumers are increasingly conscious and aware of the welfare of farm animals.

Audience Take Away Notes

- Understand the need to have biosecurity assessment tools to monitor the animal welfare
- Provide knowledge about the analytical advantages that can be used to certify egg production
- Update on method validation, in accordance with European Commission legislation, for methods used in analyzing matrices from food producing animals



Andreia Freitas^{1,2*},
Marta Leite^{1,2,3}

¹National Institute for Agricultural and Veterinary Research (INIAV), Rua dos Lagidos, Lugar da Madalena, 4485-655 Vila do Conde, Portugal

²REQUIMTE/LAQV, R. D. Manuel II, Apartado 55142, Oporto, Portugal

³University of Coimbra, Faculty of Pharmacy, Health Science Campus, Azinhaga de Santa Comba, 3000-548 Coimbra, Portugal

Biography

Andreia Freitas studied Chemistry in the Instituto Superior Tecnico (IST), Lisbon, and graduated as MS, in Analytical Chemistry (2008) at the same institution. She received her PhD degree in Pharmaceutical Sciences (2015), specialty of Bromatology and Hydrology at the Faculty of Pharmacy, University of Coimbra. With more than 18 years of experience, she is currently a researcher in the field of Food Safety specially in the area of veterinary drug residues analysis and contaminants in food of animal origin in the Nacional Institute of Agrarian and Veterinary Research (INIAV) in the National Reference Laboratory for Food Safety.

28-29 AUGUST

DAY 02

SPEAKERS

INTERNATIONAL CONFERENCE ON

**VETERINARY
SCIENCE**



Changjiang Weng

Division of Fundamental Immunology, National African Swine Fever Para-reference Laboratory, State Key Laboratory for Animal Disease Control and Prevention, Harbin Veterinary Research Institute, Chinese Academy of Agricultural Sciences (CAAS), Harbin 150069, China.

The “tricks” of African swine fever virus escaping host anti-viral innate immune responses

African swine fever is an acute, highly contagious infectious disease caused by African Swine Fever Virus (ASFV). The virus can infect domestic pigs or wild boars. In the past four months, more than 16,000 ASF cases have been reported in 27 countries. Therefore, prevention and control of ASF is still the toughest problem in the world. Upon ASFV infection, host cGAS sensed ASFV genomic DNA to promote cGAMP production. cGAMP binds to the ER-localized adapter protein STING, which then recruits TBK1. The activated TBK1 phosphorylates IRF3 and promotes it to translocate to the nucleus, inducing of type I IFN production. During the processing, RNF128 promotes ubiquitination of TBK1, which is necessary for TBK1 activity. ASFV I215L recruits RNF138 and enhances the interaction between RNF138 and RNF128, which promotes RNF138 to degrade RNF128, leading to reduce RNF128-mediated K63-linked ubiquitination of TBK1 and type I IFN production.

In this study, we also found that host Vimentin can sense ASFV genomic DNA to activate NLRP3 inflammasome. The active caspase-1 cleaves GSDMD to produce GSDMD-N fragment, which could form a hole on the cell membrane to release inflammatory cytokines. In one way, ASFV MGF505-7R interacts with NLRP3 to block NLRP3 inflammasome activation. In another way, ASFV S273R protein cleaves GSDMD-N fragment to produce two small fragments, which could not form hole on the cell membrane to release inflammatory cytokines. Recently, we found that pS273R cleaved GSDMD to inhibit inflammatory responses to promote ASFV replication. Taken together, during the past five years, our lab found that many ASFV proteins are involved in a regulating cGAS-STING signaling pathway, IFN-JAK-STAT signaling and inflammatory response signaling.

Audience Take Away Notes

- ASFV infection inhibits host antiviral innate immune responses
- pI215Lrecruited RNF138 to degrade RNF128 to inhibit interferon production, resulting in ASFV replication
- pMGF505-7R interacted with IKK α in the IKK complex to inhibit NF- κ B activation and bound to NLRP3 to inhibit inflammasome formation, leading to decreased IL-1 β production
- ASFV-encoded protein S273R (pS273R) cleaved swine GSDMD in a manner dependent on its protease activity to promote ASFV replication

Biography

Prof. Weng, is chief scientist of Division of Fundamental Immunology, director of Key Laboratory of Veterinary Immunology of Heilongjiang Province. Dr. Weng has been studying African Swine Fever Virus (ASFV), Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) and other animal viruses, involving in viral infection, viral immune escape and pathogenesis. Prof. Weng has published more than 40 scientific papers in Nature, Cell Stem Cell, PNAS Cell Rep, PLoS Pathogens, J Biol Chem, J Immunol and other journals, which have been widely cited by international peers.



Ana Margarida Ribeiro^{1,2*}, Joao Requicha^{2,3}

¹AniCura Restelo Veterinary Center, Rehabilitation and Sports Medicine, Lisbon, Portugal

²Department of Veterinary Sciences, University of Tras-os-Montes e Alto Douro, Vila Real, Portugal

³University of Tras-os-Montes e Alto Douro, Animal and Veterinary Research Centre (CECAV) - Associated Laboratory for Animal and Veterinary Science (AL4AnimalS), Vila Real, Portugal

Rehabilitation medicine in the treatment of orofacial pain associated with temporomandibular dysfunction

Temporomandibular Disorders (TMD) are a group of musculoskeletal diseases affecting masticatory muscles, Temporomandibular Joints (TMJ) and associated structures, which can significantly influence a patient's quality of life. Although the etiology it is not clear, it has been accepted as multifactorial (structural, hormonal, environmental factors). In humans, TMD has a frequency of from 25 up to 60% in some studies and affects mainly women between 30-50 years old. Studies in veterinary medicine are scarce and clinically orofacial pain of non-dental origin is underdiagnosed. Also in Veterinary Medicine, the main symptoms of TMD can be misleading as they can occur in several other diseases.

One of the most important consequences of this group of disorders is the occurrence of orofacial pain, presenting as myofascial pain and/or arthralgia. Central sensitization is believed to play an important role in TMD, being this phenomenon defined as an amplified response of the central nervous system to sensory stimuli and peripheral nociception, characterized by hyperexcitability in the dorsal horn neurons in the spinal cord which ascend through the spinothalamic tract.

The main objectives of managing TMD patients are: decreasing pain, increasing TMJ function, and reducing the reflex masticatory muscle spasm/pain. In human literature, physical rehabilitation has been accepted as a first-line of treatment option, in conjunction with a pharmacological approach. The techniques and modalities most often described vary from lasertherapy, to passive range of motion exercises, joint mobilizations and shock wave therapy. Although it is an area of increasing interest in human medicine there is not a standard approach to these dysfunctions, as in the veterinary there is a long way to go, from early diagnose, to deeper understanding of how it affects our small animal population and new treatment approaches.

This presentation aims to describe the systematic assessment and diagnosis of TMD and orofacial pain in companion animals and the rehabilitation technics and modalities used to treat this group of dysfunctions in clinical routine.

Audience Take Away Notes

- Raise awareness about orofacial pain and its impact on companion animals quality of life
- Demystify the diagnose and evaluation of TMD and orofacial pain
- Non-invasive modalities and rehabilitation technics for orofacial pain treatment
- Enhance pain control measures to improve patient quality of life

Biography

Ana Margarida Ribeiro graduated as DVM in 2009 at the Faculty of Veterinary Medicine of the University of Lisbon (FMV-UL). In 2011, completed postgraduate studies program in Companion Animal Medicine, at the European School of Veterinary Postgraduate Studies (ESVPS). In 2013, was certified as a Canine Rehabilitation Practitioner by the University of Tennessee, having completed in the same year a 3-month internship at an Animal Rehabilitation Referral Center in Spain. Since then, she has dedicated herself exclusively to this area. She is also a Certified Animal Chiropractor by the College of Animal Chiropractic (Malaga, 2019). Clinical Director of AniCura Restelo Centro Veterinario since 2019 and is currently developing a PhD project at University of Tras-os-Montes e Alto Douro (UTAD).



Anna Kasprzyk

Department of Animal Breeding and Agricultural Advisory, University of Life Sciences in Lublin, 13 Akademicka, 20-950 Lublin, Poland

Nutrition-related welfare of the red deer (*Cervus elaphus*) in organic rearing systems

The aim of the study was to analyze selected elements of the nutritional status of the red deer (*Cervus elaphus*) reared on organic farms. The botanical composition of the meadow-pasture feeding ground and water resources were analyzed. The 109-ha farm had an ecological certificate covering the meadows and pastures with ponds and watercourses, the animals, and the entire rearing process. On average, 96 red deer were reared on the farm each year with the density of 0.20 LU/ha per pen. Floristic analyses of the feeding ground were carried out once a month from April to October. The plant species identified in the plant cover were compared with the model structure of annual food resources of free-living deer. The study showed that the animals had unlimited access to rich water resources. In the feeding grounds, 119 species of plants were identified. The model structure of the natural food resources for free-living deer is composed of 33.10% of shoots of trees and shrubs, 24.40% of shrublets, 20.20% of herbaceous dicotyledonous species, 19.80% of grasses, sedges, and rushes, and 2.50% of ferns, clubmosses, and horsetails. The food resources on the analyzed farms were as follows: 14.29% of shoots of trees and shrubs, 4.20% of shrublets, 58.82% of herbaceous dicotyledonous plants, 19.33% of sedges and rushes, and 3.36% of ferns, clubmosses, and horsetails. To sum up, the diet of the red deer from the organic farm was dominated by dicotyledonous species, whereas insufficient amounts of shrublets and shoots of trees and shrubs were available. Nevertheless, this did not lead to deterioration of the welfare of the animals.

Biography

Dr. Anna Kasprzyk studied Zootechnics at the University of Life Sciences in Lublin and graduated as MSc. in 1996. She received PhD degree in 2000 at the same institution. Dr. Anna Kasprzyk is currently working as Assistant Professor at the Department of Animal Breeding and Agricultural Advisory, University of Life Sciences in Lublin, Poland. Dr. Kasprzyk research interests span improvement of the health, welfare performance of livestock animals and the quality and safety of meat. She is in the reviewer board of *Animals*. Dr. Kasprzyk is the Guest Editor of a special issue "Research Progress in Pig Genetics, Breeding and Reproduction" in *Agriculture*.



Tamara Ricardo^{1,2,a*}, Ludmila R. Bazán Domínguez², M. Pilar Ponce³, Lucila Beltramini³, Leticia Margenet⁴, M. Fernanda Schmeling⁴, Yanina Prieto³, Anahí Montiel³, Yosena T. Chiani⁴, M. Andrea Previtali^{1,2}

¹Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Santa Fe, Santa Fe, Argentina.

²Departamento de Ciencias Naturales, Facultad de Humanidades y Ciencias, Universidad Nacional del Litoral, Santa Fe, Santa Fe, Argentina.

³Instituto Municipal de Salud Animal (IMuSA), Santa Fe, Santa Fe, Argentina.

⁴Instituto Nacional de Enfermedades Respiratorias (INER) “Dr. E. Coni”, Administración Nacional de Institutos de Salud (ANLIS “Dr. C.G. Malbrán”), Santa Fe, Santa Fe, Argentina.

a Current address: Instituto Nacional de Epidemiología (INE) “Dr. J.E. Jara”, Administración Nacional de Institutos de Salud (ANLIS “Dr. C.G. Malbrán”), Mar del Plata, Buenos Aires, Argentina.

Seroprevalence of leptospiral antibodies in domestic dogs and cats attending to municipal sterilization campaigns, Santa Fe, Argentina (2022)

Domestic dogs and cats may act as epidemiological links between environments contaminated with pathogenic *Leptospira* and humans. The province of Santa Fe, Argentina, is endemic for leptospirosis and presents epidemic outbreaks during floods. However, few studies have evaluated leptospiral infection in asymptomatic dogs and cats from this region. The aims of our study were: (a) to assess seroprevalence of leptospiral antibodies in asymptomatic dogs and cats attending municipal spaying/neutering campaigns, (b) to evaluate factors that can increase the probabilities of infection, and (c) to identify potential spatial clusters of infection.

We conducted a cross-sectional serosurvey between May and December of 2022 in public spaying/neutering campaigns in Santa Fe city, Argentina. Domestic dogs and cats over six months of age, without symptoms of febrile illness and no leptospirosis vaccination in the previous 6-12 months were considered as eligible. We obtained a blood sample of 1.5-3 ml, according to the size of the animal to evaluate the presence of anti-*Leptospira* antibodies by microagglutination test (MAT) using a panel of 10 reference strains. Data was analyzed at the individual level using mixed-effects logistic regression models to assess potential risk factors of seropositivity in dogs and cats. Data was also aggregated to the census tract level to conduct a spatial analysis using mixed-effects generalized additive models (GAMM) with a Poisson distribution to predict potential areas of high seropositivity.

We analyzed 110 dogs and 84 cats and found a seroprevalence of 17.3% and 3.6%, respectively. Seropositivity in dogs was significantly associated with street access ($P=0.036$). Spatial analysis revealed a significant association with the % of houses without sewage systems and detected a potential cluster of seroprevalence in a riverside slum with high levels of unsatisfied basic needs (NBI). The results of our study could be of use to develop public and veterinary health strategies aimed at increasing awareness of the exposure of pets to this infection in veterinary practices, expanding the coverage of leptospirosis vaccination in dogs, as well as promoting responsible pet caretaking.

Audience Take Away Notes

- The results of this study could be useful to identify urban areas with a higher susceptibility to leptospiral infection in domestic dogs and cats.

- Our results also will be of use to reinforce public health and veterinary strategies aimed at preventing infection with *Leptospira* in both animals and humans.
- The incorporation of cat serum samples and both host-related and environmental/sociodemographic characteristics will improve the design of cross-sectional and cohort studies aimed to detect the presence of pathogenic leptospires and other zoonotic diseases in dogs and cats from urban areas.

Biography

Dr. Tamara Ricardo earned a BsC in Biodiversity (2009) and a PhD in Veterinary Sciences (2019) from the National University of Litoral (UNL), Santa Fe, Argentina. She was a doctoral fellow and later a postdoctoral fellow under Dr. Previtali's guidance at UNL. In 2023, she started working as a researcher at the National Institute of Epidemiology (INE), Mar del Plata, Argentina, where she also is part of the teaching staff of postgraduate epidemiology courses. Her accomplishments include seven peer-reviewed articles, two book chapters, four published conference abstracts, and two articles currently under review.



Mahmoud M Elalfy^{1*}, Mohamed S Aboumosalm², Mona G Elhadidy³, Sara T Elazab⁴

¹Faculty of Veterinary Medicine, Mansoura University, Egypt, clinical science department, college of veterinary fasail university, KSA

²Faculty of Veterinary Medicine, Mansoura University, Egypt

³Medical physiology, Faculty of Medicine, Mansoura University, Egypt, medical physiology faculty of medicine AL Baha university, KSA

⁴Department of Pharmacology, Faculty of Medicine, Mansoura University, Egypt

Effect of melatonin treatment on teratogenic effects of oral administration of silver nitrates in female albino rats

Aim: The study was aimed to explore the protective effect of melatonin against silver nitrates induced toxicity in pregnant female rats.

Methods and materials: Twenty-four pregnant female rats were divided into four groups each group contained six rats weigh 180 to 200 g. Silver nitrates (Sigma Aldrich, USA) was given orally, dissolve in di-ionized water, at dose level 0, 50, 100 ppm equivalent to 1/20 and 1/10 of the LD50 recorded earlier from 6th to 15th days of gestation. On 21st day of pregnancy, blood of dams and pups was collected for serum separation and all feti examination grossly and preserved in ethyl alcohol for skeletal examination and in bouin'ssolution for examination of visceral malformations.

Results: Silver nitrates at different doses were induced delayed ossifications of different bones as of skull bones, supraoccipital and interparital bone plates, sternbrae and fore limb phalanges, vertebrae and rib cage besides the fore and hind limb bones. Melatonin treated group shown no teratogenicity and retain tissue arectecture after combiened treatment with silver nitrates in pregnant female albino rats. The only feature noticed of melatonin treatment on feti was the symenterical length of all feti of each dam but was reduced the length of feti when compared to control group.

Conclusion: It was concluded that silver nitrates at different doses induced skeletal malformation as delayed ossification while melatonin shows similarity to control group especially in bone ossification but the size of bones still smaller than control.



Sanjib Borah^{1*}, S Soren¹, L Kalita² K Pame¹, B Borah¹, B N Bhattacharryya³

¹Lakhimpur College of Veterinary Science, Assam Agricultural University, North Lakhimpur-787051, Assam, India

²Kamrup Polytechnic, Baihata Chariali, Kamrup-781381, Assam, India

³College of Veterinary Science, Assam Agricultural University, Guwahati-781022, India

Ameliorative effect of phytogetic feed additives on thermal stress in growing pigs

Imbalance between metabolic heat production and its dissipation results in heat stress under hot-humid climate. This study aimed to investigate the correlation of IGFs, IGFbps and IGFbprs of grower pigs with change in Temperature Humidity Index (THI). THI was calculated to know the months of the year when pigs feel discomfort and samples feed offered were analysed to know the nutritional availability/deficit. The calculated average THI was above thermal comfort zone during seven months in a year. It was observed that Crude Protein (CP) and Metabolizable Energy (ME) availability to pigs were deficient. Gilts of two months age and similar body weight were randomly divided into two groups (n=6); Con-fed animals (feed offered by the farmer) and For-fed animals (formulated feed supplement + Con-fed). The composition of formulated feed supplement was dried leaf of Moringa oleifera, Soybean meal, rice mill waste and mineral mixture fortified with 500 ppm of Zinc. The plasma cortisol level was increased in the experimental animals with accelerated THI as evidenced from the strong positive correlation of THI with HSP70 & HSP90. The level of leptin and ghrelin did not have significant relation with the expression level of HSPs in the present study, however in the control animals a low level of leptin was observed. The correlation between the growth factors and HSPs was not significant. During the season, where the THI was above thermal comfort zone, the IGFbpr and IGFbp concentrations were non-significantly increased along with the increased THI. It may be concluded that the phytogetic feed additives can be use to ameliorate thermal stress in farm animals that do not possess functional sweat glands.

Audience Take Away Notes

- The audience could understand the use to phyogenic feed additives in reducing thermal stress
- The audience could identify some pants that having growth promoting effect on pigs
- The researcher could understand the specific effect of thermal stress in growth

Biography

Dr. S. Borah awarded Ph.D. degree in the discipline of Veterinary Physiology from Assam Agricultural University, India. He is involved in teaching Veterinary Physiology from 2014 in Assam Agricultural University. Apart from teaching assignment he is actively involved in research work in the capacity of principal investigator and co-principal investigator in research project funded by different agencies. He was also a part of the research team to produce world's first Yak Calf born through ETT. His research works have been recognised and published in various capacities at national and international platforms. His contribution to the peer reviewed journals has been recognised in the capacity of member of editorial board, scientific review board. He is active member of different scientific societies and associations of national and international repute.



Arunasis Goswami¹, Sukanta Biswas^{2*}

¹Professor, Dept. of Veterinary & A.H. Extension Education West Bengal University of Animal & Fishery Sciences 37, K.B. Sarani, Belgachia, Kolkata-700037, West Bengal, India

²Associate Professor, Dept. of Veterinary & A.H. Extension Education, West Bengal University of Animal & Fishery Sciences 37, K.B. Sarani, Belgachia, Kolkata-700037, West Bengal, India

Knowledge based adoption and information oriented advisory services in sustainable livelihood security of small animal farmers

Small Animal particularly Goat, Sheep & Pigs are important animals in subsistence agriculture on account of unique ability to adopt and maintain themselves in rural harsh environment. These farming practices play crucial role for improving livelihood and socio-economic status of rural stakeholders. So, improving the productivity and profitability of these need based entrepreneurial sectors necessitates scientific orientation along with adoption of improved practices. Considering these scenarios, the study was promulgated to explore the factors related to adoption of improved practices by rural small animal owners in various agro-climatic zones in the eastern region of India. Total 880 no. of sample respondents were randomly surveyed for collection of data proportionately from 06 agro-climatic zones of Eastern India. Analytical study revealed that, greater numbers of small animal farmers belonged to middle age (30-50 years) group, marginal category, Hindu religion, married, lower education and nuclear family with very poor income status. Labor and cultivation were the primary occupations to maintain their livelihood along with traditional animal husbandry practice as ancillary support. The study explored that, among all independent variables, income source, and communication source, knowledge & attitude level were the key elements which directly and indirectly helped to improve the adoption index of small animal owners for successful entrepreneurship development. The essential targeted variables such as- Knowledge in green fodder feeding, communication source, knowledge in milk products, marketing orientation, total income, attitude in productivity and religion were the most important variables to measure the adoption index of small animal farmers about selected IAHP in all various agro-climatic regions of Eastern India. The majority of selected entrepreneurs had a medium level of knowledge and adoption about improved animal husbandry practices. The study was conducted to recommend specific guidelines for prospective planning and development of small animal farmers in the Eastern region of India. The research findings of the study recommend that for formulation of strategic planning for the A.H. development emphasis should be given on women folk especially for their substantial empowerment through small animal enterprises. All communities, income group, age group, literacy, land and livestock holding have to be considered for formulation of strategic planning of small animal husbandry development. Marketing orientation, Attitude towards livestock rearing, knowledge level about improved practices, adoption rate of improved technologies, mass media exposure, social participation, personal Cosmo politeness and personal localiteness are to be considered while planning for small livestock development. Therefore, the planners and policy makers have to consider the cited parameters for development of pro-poor small animal owners. Only the degree and magnitude of the parameters will vary depending upon different agro-climatic regions of similar demography and socio-economic scenario for which technologies are to be consulted during planning and development of intended stakeholders.

Key Words: Knowledge, Adoption, information, advisory, Livelihood, Small Animal, Farmers, Agro-climate etc.

Audience Take Away Notes

- The learning of the presentation will be helpful to the audience for getting better insight about the socio-economic status of the pro-poor small animal farmers in various agro-climatic regions of any country
- The findings of the study will help the audience to prepare a detail roadmap for disseminating need based improved technological practices in effective socio-economic development of the stakeholders and country
- This is a kind of applied sociological research study for exploring the factual incidence of our rural stakeholders. The findings may be used for future research and teaching with similar nature if needed
- The findings of the study are very much need based and practical, which definitely provide a practical solution to the specific constraints of reality in simplified manner to make the designer's job more effective and efficient absolutely
- The recommendation of the study will definitely excel and improves the accuracy of a design of similar nature along with extending innovative information for better assisting in the designing and resolving problem of the intended stakeholders
- List all other benefits
 - o The study recommendation will be helpful to prepare a roadmap guide for holistic development of the intended stakeholders through improve knowledge based adoption and information oriented advisory services on improved animal husbandry practices in various agro-climatic regions with the vision of sustainable development goals

Biography

Dr. Sukanta Biswas, working as Associate Professor, WBUAFSC, Kolkata since 18.10.2019. He worked as Secretary, Faculty Council, University of Kalyani from 13.04.2017 to 17.10.2019 and performed as SMS/Lecturer (Animal Sc.) in Uttar Banga Krishi Viswavidyalaya, Coochbehar from 27.01.2005. He has 17 years of teaching, research & extension experience, published 43 Nos. of research papers, technical article: 73 nos., Books: 04 Nos; International E-Book-12 No's; Book Chapter: 03 No's., Laboratory Manual: 06 Nos.; Monographs: 03 No's, Judge/Chair Person: 06 Nos.; Expert Committee Members: 16 Nos.; External Examiner/Paper Setter: 12 Nos.; Reviewer/Editorial Board Member: 06 Nos.; Oral & Poster Presentation: 15 Nos.; News Letter: 01 No, Booklet: 17 Nos., He has attended National Seminar/Webinar: 103; International Seminar & Webinar: 37 Nos; Workshop & Symposium: 26 No's; Long Term Training: 21 Nos.; Short Term Training: 60 No's etc.

**¹Annalisa Berns*, ²Landa Coldiron**

¹Pet Search and Rescue Investigations, Largo, Florida, United States

²Lost Pet Detection, Los Angeles, California, United States

Lost pet search management

Learn from two top Pet Detectives and K9 Handlers how to manage a lost pet search from a clinic. Insights into new methods used to find missing animals, including specially trained Search K9s. Dramatic reunions, client communication, lessons learned and question and answers.

Audience Take Away Notes

- Learn how to manage a lost pet search from a veterinary clinic
- Learn new methods to find missing animals
- Learn about Search K9s trained to find lost pets

Biography

Annalisa Berns: Owner, Search Dog Handler & Licensed Private Investigator Annalisa Berns is the owner of Pet Search and Rescue and Pet Search and Rescue Investigations. She dreamed of working with animals from a young age. Annalisa found her life's work when she read Kat Albrecht's book, "The Lost Pet Chronicles." She is passionate about educating people about how to bring their lost pets home. On a lost pet case Annalisa usually works 2-3 Search Dogs. She also coaches people how to find their lost pets. **Landa Coldiron:** Owner & Search Dog Handler Two-time award winning Bloodhound Handler Landa Coldiron, works specially trained Search Dogs to help locate lost pets. She specializes in educating people about lost cat and dog behavior. She has trained with Bloodhound Coalition Members, retired police, Search and Rescue Managers, volunteer Sheriff K9 handlers and California Rescue Dog Association/Area Search and Trailing Dog personnel. Former clients have included the Riverside County Sheriff Department, major pet outlets, celebrities, veterinarians, and a major motion picture television studio.

Rajashree Mishra

Department of veterinary Microbiology, College of Veterinary Science & A.H. Odisha
University of Agriculture Technology (OUAT), Bhubaneswar-751003(Odisha)

Modified Antibiotic Susceptibility Testing (ABST) for evaluating bacterial resistance in biofilm forming bacterial isolates from chronics mastitis

Bacterial isolates from 3600 milk samples chronic mastitis of cattle were screened over a period of March 2019 to December 2022 were subjected to routine isolation and identification. Antibiotic sensitivity testing of all samples for both biofilm faoming and planktonic forms were also carried out and It was revealed that styphylococcus (n=3156) E. Coli (n=3552) and P. aeruginosa (n=457) were the predomint isolation. The result showed that bacterial isolates from prolonged chronic mastitis were isolated and screened for their biofilm producing ability. Antibiotic sensitivity testing for both biofilm forming and planktonic forms of selected isolates of Staphylococcus aureus (n=7), E. coli (n=5) and P. aeruginosa (n=4) was performed. 0.3% Bentonite clay was adopted as a substrate along with MHA for biofilm forming bacterial isolates. The results showed that average zone of inhibition and resistance against antibiotics was higher for biofilm forming bacterial isolates than their planktonic counterparts. Therapeutic resistance is much higher for bacteria that is commonly observed in nutrient agar media during screening for antibiotic sensitivity testing, suggesting there is a need for use of other substrates.

Keywords: Antibiotics Resistance, Bentonite Clay, Biofilm, Canine, Wound.



Anindita Bar¹, Subham Rana², Moumim Gharami³, Tanisha Naz⁴, Rina rani Roy⁵, Arunasis Gosawmi⁶, Anonnay Gantait⁵, Kishalay Paria^{7*}

¹Department of Zoology, Ramananda College, Bishnupur, West Bengal, India,722122

²Department of Microbiology, St. Xavier's College, Kolkata, West Bengal, India

³Department of Biotechnology, Swami Vivekananda University, Barrackpore, West Bengal, India

⁴Department of microbiology, Maulana Abul Kalam Azad University of Technology, Nadia, West Bengal, India

⁵Department of Life Sciences, Maulana Abul Kalam Azad University of Technology, West Bengal, Simhat, Haringhata, Nadia, West Bengal, India

⁶Department of Vety. & Anim. Hus. Ext. Education, Faculty of Veterinary & Animal Sciences, University of Animal and Fishery Sciences, 37, K.B. Sarani, Kolkata-700037, India

⁷Department of Biotechnology Oriental Institute of science and Technology, Vidyasagar University. West Bengal, India,721102

Causes, prevention and control of zoonotic diseases

Zoonotic disease or Zoonosis is a group of infectious disease that can cross the species boundary and can transmitted between animals to humans or from humans to animals. Most of the time, it became a great concern for our society when zoonotic disease transmitted from wild or domesticated animal to human. From various historic documents its evident that zoonotic diseases can destroy a whole civilization or emperor. There are several devastating zoonotic disease of human i.e. anthrax, plague, Middle East Respiratory Syndrome (MERS), Ebola, Severe Acute Respiratory Syndrome (SARS). Zoonotic diseases are particularly important, as about 60 % of the 1,407 human pathogen species are zoonotic. In 2019 COVID -19 pandemic was appeared as a threat to global health and it destroyed the sustainable economic status of our society. Actually wide spectrum inter-host specific zoonotic diseases are more harmful than intra host. Steps taken to control or prevent the zoonotic disease epidemic and pandemic had a long term health, socio-economic, cultural impacts. Some poultry framers and fish farmers are using huge amount of antibiotics for controlling the zoonotic diseases. These drugs can enter into human bodies through biomagnifications. For that reason, unknowingly our gut microbial flora can resist antibacterial drug that is major threat of human beings. The onset and spillover of zoonotic diseases depends upon several factors such as- grazing, animal husbandry, socio-economic status, environmental factors, lack of proper sanitation system, food habit, traditional animal derived food processing systems etc. In current COVID-19 context, we can take following steps to control zoonotic diseases i.e. mass awareness program by government and other stakeholders, development of edible and effective vaccine, target to herbal and natural products for treatment of zoonotic diseases.

Keywords: Herbal product, Sanitation system, animal husbandry, multi host.

Audience Take Away Notes

- What is zoonotic diseases
- How does it spread
- How does it affect our society
- Control measures
- Our role in prevention and controlling

- A proper knowledge about the infectious zoonotic disease can improve the physical and mental health of a person which can in turn improve their performance at job
- Although several researchers are involved in these types of research, yet of course this research can be used to expand other research work and teaching. In the recent pandemic context the whole world is searching for the causes and cure for various zoonotic diseases. This work will provide a large number of scientific information for teaching and open up some opportunities for future research
- By knowing the hosts and infection route of zoonotic diseases, it is possible to break the infection chain of these diseases like SARS, MARS, COVID-19
- During animal farming, trading proper precaution can be taken to prevent the transmission of the diseases.
- To modify animal eating habit
- This knowledge will help to vaccine development. Yet numerous challenges and constraints with regard to its practical applications on a large commercial scale still prevail
- Yes, it will improve the accuracy of a design, or provide new information to assist in a design problem
- List all other benefits
 - o It will help people to know the causes routes and reservoirs of zoonosis. It will help to protect and prevent zoonosis during animal farming, animal trading and animal eating. Vaccine development is the most important aim of the study. Prevent mankind from zoonosis by using natural and herbal product is the other objective

Biography

Dr. Kishalay Paria completed the Ph.D. degree from Vidyasagar University, India. Now He join as Assistant Professor of Biotechnology, OIST, Vidyasagar University. He has published some research papers and few book chapters in reputed international journal. Recently he selected as Bentham Ambassador. He is life member of Biotech Research Society, India. He serve as reviewer for scholarly journals such as: Phytotherapy Research (Wiley), Heliyon (Elsevier), Recent Patents on nanotechnology (Bentham Science), Sustainability, Agriculture, Food and Environmental Research, International Journal of Optics and Photonic Engineering, VIBGYOR. He serves as Editorial board member of SCIREA Journal of Environment. He serve as Research consultant in Tarama Feed Product for more than 10 years. He selected as invited speaker International Conference and Expo on Applied Microbiology" and Global Meet on Food Science and Technology (GMFST2023).



Dibyendu Biswas

Dept. of Medicine, Surgery and Obstetrics, Faculty of Animal Science and Veterinary Medicine, Patuakhali Science and Technology University, Barishal Campus, Babuganj, Barishal-8210

Sero-prevalence of contagious bovine pleura-pneumonia disease of dairy cows at barishal region, Bangladesh

Respiratory diseases of cattle are very costly and deadly disease and among them Contagious Bovine Pleura-Pneumonia (CBPP) is a silent killer, that was listed an OIE, caused by *Mycoplasma mycoides* subsp. *mycoides*, a member of the *Mycoplasma mycoides*. The aim of the present study was to evaluate the seroprevalence of CBPP antibody and analysis the risk factors associated with the CBPP in dairy cattle. Total eleven dairy farms in 4 upazilas of Barisal division were selected. From this dairy farm total 91 blood samples were collected and serums were preserved at -20C for further use. The ELISA kit for CBPP antibody was used to detect CBPP in the collected sample according to manufacture instructions and 450 nm filter was used to read the ELISA microplate. The results were interpreted according to the supplied literature. DNA was extracted by Favorgen blood genomic DNA extraction mini kit for Polymerase Chain Reaction (PCR). Among the samples about 39.56% samples were positive for CBPP antibody in this area. However, among the 4 upazilas, 52.38% samples were positive for CBPP antibody at Mehendiganj upazila and lowest CBPP antibody was detected at Barishal sadar upazila. According to cow level data analysis, it was found that numerically Holstein cattle were more susceptible to CBPP than Sahiwal cattle and female animals were more susceptible than male animals but there was no any significant difference. On the other hand, good farm hygiene practice can reduce CBPP antibody detection at dairy farm level. However, 21.98% sample were positive for CBPP in PCR result. In this study it was also found that CBPP antibody was more detected in small scale dairy farms in regards to either herd size or farm area. From this study it was concluded that CBPP antibody was more detected in Holstein cattle and good farm hygiene practice and large farm area can reduced the chance of CBPP infection.

Acknowledgement: This work was supported by a grant from the Bangladesh Bureau of Educational Information and Statistics, Ministry of Education, Bangladesh.

Biography

Dibyendu Biswas graduated from Bangladesh Agricultural University, Bangladesh in 1999. And also Phd from Chungbuk National University, South Korea since 2011. I also did Post doc study from the same University in 2017-2018. Now I am working as a professor of the Department of Medicine, Surgery and Obstetrics at Patuakhali Science and Technology University since 2012 to date. I published 51 research papers nationally and internationally reputed journals. I have been involved in teaching of farm animal reproduction, treatment, including management, diagnosis, and prevention of different diseases. Also my expertization is on disease model animal production through Somatic Cell Nuclear Transfer (SCNT), in-vitro and ex-vivo model embryo production, semen analysis and processing. part from this I have a little experience on large and small animal surgery. I am also engaged in the pedagogy skills pool of FAO, Bangladesh.



Asma Waheed Qureshi*, Qurat ul Ain, Shafaq Nawaz

Department of Zoology, GC Women University Sialkot, Punjab, Pakistan

Analysis of biopharmaceutical properties of *cuminum cyminum*, *syzygium aromaticum* and *capsicum annum* against bovine mastitogens

The Present study is aimed at evaluating in vitro activity of ethnolic, n-hexane and acetone extracts of medicinal plants; *Cuminum cyminum*, *Syzygium aromaticum* and *Capsicum annum* against bovine mastitogens. Bacterial mastitogens isolated from milk samples and their strains were confirmed by morphological studies were *Escherichia coli*, *S.aureus* and *Klebsella*. Extracts of selected plant materials (*C.cyminum* seed; *S.aromaticum* flower buds and *C.annum* fruits) were prepared by maceration technique. Formulations of different extracts were prepared to evaluate their synergistic or antagonistic effects. Extract and formulations were tested against mastitogens using agar disc diffusion method and zones of inhibition were measured to compare efficacy of these plants. It was observed that combined plant extracts showed enhanced antibacterial activity. Most of the combined plants extract formulations revealed synergism. Our findings reported that clinical strains *E. coli*, *S. aureus* and *Klebsella* which were completely resistant to ciprofloxacin showed tremendous susceptibility towards separate and combined plant extracts. Most susceptible strain towards plant extracts were *Klebsella E. coli* followed by *S. aureus*. Most resistant strain towards plant extracts was *Klebsella*. Ethanol shows maximum efficacy individually but in formulation it reduces its efficacy. *Capsicum annum* shows no efficacy in individual trial while in combination *C.annum* showed maximum efficacy (*C.annum*Hex 5µl+*C.annum*Ace 5µl+ *C.annum*Eth 5µl) Hex 1:1:1. Topmost three largest zones of *S.aromaticum* was observed against *S.aureus* including extracts *S.aromaticum*Hex 5µl, *S.aromaticum*Ace 5µl, *S.aromaticum*Eth 5µl (1:1:1) gave the highest zone of 40mm. It was concluded that prominent synergism occurred in most of the combined plant extracts highlighting medical importance for combating infections caused by multidrug resistant bacteria. Current study clearly suggests that various combinations of these three plant extract could be used as potential natural resources in order to develop promising antibiotic for treating various infections.

Audience Take Away Notes

- They can test extracts of the selected plant varieties against resistance Bovine mastitogens, reported in their area
- Pharmacologist can develop new drug against from the extracts of selected plants
- In Vivo analysis can be done further to evaluate any toxic effects of these plants

Biography

Dr. Asma Waheed Qureshi studied Zoology at University of The Punjab, Pakistan, and completed her M.Sc in Zoology (Research field: Microbiology). She then joined the Parasitology Laboratory at University of The Punjab, Pakistan and completed her PhD degree in 2010 at the same institution. In 2020 she completed her post-doctorate from Firat University, Turkey. She has supervised more than 30 post graduate scholars and published 40 research articles in National and International reputed Journals. She also presented her research work at national and International platforms. Currently she is working as Associate Professor at Govt. College Women University Sialkot, Pakistan.



Wardhana AH^{1,2*}, Munawar H³, Sawitri DH¹, Ramadhani F⁴, Maryam R¹

¹Research Center for Veterinary Science, Research Organization for Health, National Research and Innovation Agency, Bogor, West Java, Indonesia

²Department of Parasitology, Faculty of Veterinary Medicine, University of Airlangga, East Java, Indonesia

³Research Center for Chemistry, Research Organization for Nanotechnology and Materials, National Research and Innovation Agency, Serpong, Tangerang Selatan, Banten, Indonesia

⁴Commensal Symbionts and Animal Pathobionts Research Group, Research Organisation for Life Sciences and Environment, National Research and Innovation Agency, Bogor, West Java, Indonesia

Development of biosensor for trypanosomosis (Surra) in livestock caused by *Trypanosoma evansi*

Surra is disease caused by a blood-flagellated protozoan, *Trypanosoma evansi* resulting in a major economic loss. The parasite can attack all livestock, wild animals, including humans (zoonosis). Various diagnostic methods have been developed; however they have limitations. Therefore, a minimum of two diagnostic procedures are required to confirm the disease. This research aimed to develop a prototype biosensor for detecting antibodies against *T. evansi* in livestock, which could be used as a diagnostic instrument for Surra management in the field. This sensor technique was based on protein isolated from *T. evansi* isolates from the Indonesian Research Center for Veterinary Science Culture Collection. Additionally, the protein was characterized to ascertain the *T. evansi* protein concentration obtained using ELISA. Proteins were immobilized by a covalent immobilization procedure that involved the use of EDC/NHS as an intermediary between the protein and the sensor's carbon working electrode surface during a maximum immersion time of 2 hours to 1 day. The sensor was then examined with positive and negative serum using differential pulse voltammetry with the following parameters: potential range -0.5 – +0.5 V, 10 mV potential step, and 25 mV/s scan rate. Due to the sample's limited number of electron fluxes, each serum sample will be supplemented with a redox couple system, $[\text{Fe}(\text{CN})_6]^{3-}/[\text{Fe}(\text{CN})_6]^{4-}$ 25 mM. The results demonstrated that the developed Surra biosensor was capable of significantly recognizing *T. evansi* antibodies at dilutions of 4-64 times. The protein concentration necessary for biosensor construction was tuned to be approximately 0.04 mg/ml. According to slope observations, positive serum samples often have slope areas between 0.5 and 0.9, and negative serum samples have slope areas between 0.1 and 0.2. The repeatability of the sensor also demonstrates considerable results, with the three *T. evansi* sensors exhibiting nearly identical response trends. The study concludes that protein-based biosensors may be used to identify surra in livestock.

Keywords: Biosensor, *Trypanosoma Evansi*, Protein, Surra, Diagnosis.

Biography

Dr. April Hari Wardhana graduated from the University of Airlangga in 1998 with a degree in veterinary science. Afterward, he was approved as a scientist at the Indonesian Research Centre for Veterinary Science (IRCVS). In 2000, he received a scholarship to pursue his Master's degree at the University of Gadjah Mada and conducted research for his thesis at the Natural History Museum in London, United Kingdom. In 2006, he received a Ford Foundation scholarship to study at London School of Hygiene and Tropical Medicine, University of London, after completing his master's degree. In 2014, he concluded his postdoctoral program at the Natural History Museum. He is now the coordinator of the Disease Detection and Vector and Animal Health Control research division at the Research Centre for Veterinary Science, the National Research, and Innovation Agency. He published more than 80 research articles in journals and proceedings.

**Melissa R Shyan Norwalt**

Department of Psychology, University of Cincinnati, Cincinnati, Ohio,
United States

The human-animal bond with caretakers, researchers, technicians, and animals

A relationship—whether intentional or not—is often established between humans and animals in veterinary facilities, agricultural facilities, and laboratories. Behavioral theorists suggest that human-animal relationships can take several different forms. Research has found that the nature of these relationships or bonds can directly and negatively affect the findings of scientific studies, the qualities of meat products in agriculture, and the treatment success, long-term of animal patients. The presentation will provide five categories of human-animal bond relationships and will address how they affect both animal and human welfare, and animal-outcomes in these various settings. The presenter will provide a variety of real-world examples, as well as scientific evidence on these. Caretakers, veterinary staff, and researchers may find this information helpful, as they continue work to improve outcomes, by first recognizing and then consciously modifying and selecting these relationships.

Audience Take Away Notes

- The audience will learn to observe their own relationships with their research or animal patients
- This presentation addresses the different types of relationships, how they affect the humans and the animals, including human-fatigue, and ways to modify these to improve both animal and human welfare
- Yes, this provide a practical solution to a problem that could simplify or make a designer's job more efficient

Biography

Dr. Shyan Norwalt received her Doctorate in Experimental Psychology at the University of Hawaii in Comparative Cognition. After a two-year postdoctoral fellowship on research in primate cognition, she taught for two years at Southwest Texas State University, and then moved to Butler University in Indianapolis, where she taught experimental methods, learning, and cognition for 13 years. She has been a college professor, published scientist, animal shelter manager, and animal behaviorist. She is currently an Educator Associate Professor of Psychology in the College of Arts and Sciences at the University of Cincinnati.



Mark Okot*, Gladys Kalema Zikusoka

Conservation Through Public Health, Uganda

Biodiversity conservation and one health

Conservation Through Public Health (CTPH), a 20-year-old award-winning NGO, promotes biodiversity conservation by enabling people, gorillas and other wildlife to coexist through improving their health and livelihoods in and around Africa's protected areas. CTPH has three integrated strategies: wildlife conservation, community health, and alternative livelihoods.

Wildlife conservation with a focus on gorilla health monitoring includes observation of clinical signs and monthly collection of gorilla fecal samples and when they are abnormal, which are analyzed for intestinal helminths. Interventions like deworming of humans and livestock are carried out where their parasite infection is high and spilling over to gorillas. Gorillas with severe clinical signs due to parasite infections are dewormed. Research on bacterial, viral, and protozoal diseases is also carried out at Bwindi Impenetrable National Park (BINP) and other protected areas in Uganda to optimize the health of wildlife, livestock, and people.

Community Health has a focus on One Health engaging and empowering community volunteers called, Village Health and Conservation Teams, to conduct behavior change communication on integrated health and conservation activities including hygiene and sanitation promotion of hygiene and sanitation, family planning and infectious disease prevention and control as well as reporting diseases in a timely manner.

CTPH through its social enterprise Gorilla Conservation Coffee, supports smallholder coffee farmers around BINP and other gorilla habitats to grow coffee, which is bought from them at a premium price. This helps to alleviate poverty and reduce reliance on the forest for food and fuelwood reducing threats to endangered gorillas and their habitats. CTPH also supports local communities by providing them with "Ready to Grow" seedlings. Gorilla Guardians, Community Animal Health Workers and Village Health and Conservation Teams are supported with group livestock income generating projects, which they reinvest into Village Saving and Loan Associations to motivate them as community volunteers.

CTPH being a pioneer in this One Health approach to conservation has played a tremendous role in conserving the endangered mountain gorillas and their habitat. The mountain gorilla is the only gorilla subspecies showing a positive trend in population growth from 650 in 1997 to 1063 in 2018 and was reclassified by IUCN from critically endangered to endangered. Bwindi Impenetrable National Park is also an Important Bird and Biodiversity Area and a UNESCO World Heritable Site. Therefore, this approach has proven to be an effective strategy in promoting biodiversity conservation.

Biography

Dr. Mark Okot is a distinguished veterinarian working at Conservation Through Public Health (CTPH), an award-winning NGO that promotes biodiversity conservation by enabling people, gorillas and other wildlife to coexist through improving their health and livelihoods in and around Africa's protected areas. Dr. Mark graduated with a Bachelor of Veterinary Medicine from Makerere University in 2019 and in 2023, obtained a MSc. in Public Health from the University of South Wales. He is also a Project Management Professional (PMP) licensed by the Project Management Institute, Pennsylvania, USA. Dr. Mark is passionate about One Health and has four years relevant working experience. He has been involved in a number of projects during this time and served in various capacities, for example; Project Manager and Consultant. His upcoming presentation highlights the intersection of veterinary work and public health in biodiversity conservation.

Participants List

Abhina Mohanan JIPMER, India	37
Aleksandra Trociaczyk University of Life Sciences in Lublin, Poland	20
Ana Margarida Ribeiro University of Tras-os-Montes e Alto Douro, Portugal	50
Andreia Freitas Nacional Institute of Agrarian and Veterinary Research, Portugal	47
Anna Kasprzyk University of Life Sciences in Lublin, Poland	51
Annalisa Berns Pet Search and Rescue Investigations, United States	58
Asma Waheed Qureshi Govt. College Women University Sialkot, Pakistan	63
Aya Atef Kandil Animal Health Research Institute, Egypt	42
Carla Asorey Blazquez Dick. White Referrals, United Kingdom	18, 24
Changjiang Weng Harbin Veterinary Research Institute, China	49
Colin Sakinofsky Australian Institute of Architects, Australia	16
Dibyendu Biswas Patuakhali Science and Technology University, Bangladesh	62
Farhad Karimi Urmia University, Iran	45
Ghebremedhin Tsegay Harbin Veterinary Research Institute, China	44
Kerrie Ni Dhufaigh Micron Agritech, Ireland	40
Kishalay Paria Ramananda College, India	60
Krzysztof Marycz Wroclaw University of Environmental and Life Sciences, Poland	22
Lowell Ackerman American College of Veterinary Dermatology, Canada	14

Participants List

Mahmoud M Elalfy Mansoura University, Saudi Arabia	54
Marisa Gil Lapetra University of Paris X. Marisa, Spain	26
Mark Okot Conservation Through Public Health, Uganda	66
Melissa Shyan-Norwalt University of Cincinnati, United States	65
Minakshi Arya North Dakota State University, United States	34
Peter M Skip Scheifele University of Cincinnati FETCHLAB, United States	31
Rajashree Mishra Odisha University of Agriculture & Technolu(OUAT), India	59
Rajkumar Sah Bihar Agricultural University, India	29
Sanjib Borah Assam Agricultural University, India	55
Shalini Sharma Guru Angad Dev Veterinary and Animal Sciences University, India	36
Steven Theriault Cytophage Technologies Inc, Canada	33
Sukanta biswas West Bengal University of Animal & Fishery Sciences, India	56
Tamara Ricardo Instituto Nacional de Epidemiología, Argentina	52
Tsvetan Tsvetkov Institute of Biology and Immunology of Reproduction Bulgarian Academy of Sciences, Bulgaria	28
Wardhana April Hari Research Centre for Veterinary Science, Indonesia	64

*"We wish to meet you again at our
upcoming events next year..."*

Questions? Contact

+1 (702) 988-2320 or
veterinary@magnusconference.com